```
      17jun03 09:31:07 User259284 Session D2260.1

SYSTEM:OS  - DIALOG OneSearch
  File 350:Derwent WPIX  1963-2003/UD,UM &UP=200338
        (c) 2003  Thomson Derwent
  File 347:JAPIO  Oct 1976-2003/Feb(Updated 030603)
        (c) 2003 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run.  See HELP NEWS 347 for details.
  File 344:Chinese Patents Abs  Aug 1985-2003/Mar
        (c) 2003 European Patent Office
  File 371:French Patents  1961-2002/BOPI 200209
        (c) 2002 INPI.  All rts. reserv.
*File 371: This file is not currently updating. The last update is 200209.


Set     Items   Description
S1         10   AU=VESTER? AND AU=RENZ?
S2         10   Sort S1/ALL/PY,D
S3      82497   S99:S100
S4      11397   S3 AND ANTENNA?
S5          4   S4 AND SPOKE?
S6         32   S4 AND WHEEL?
S7        119   S4 AND GEOMETR?
S8        446   S4 AND CONFIGUR?
S9       3447   S4 AND (SPACE?? OR SPACIAL??? OR ARRANG??????)
S10         1   6AND7
S11        12   S6 AND S8:S9
S12        72   S7 AND S8:S9
S13         2   S12 AND ROD??
S14       300   S4 AND ROD?????
S15         5   6AND14
S16        92   S7:S9 AND S14
S17       193   8AND9
S18         6   (S12 OR S17) AND S16
S19        25   S5 OR S10:S11 OR S13 OR S15 OR S18
S20        25   S19 NOT S2
S21      1362   S4 AND (RADII OR RADIUS??? OR RADIAL??? OR CIRCUMFEREN? OR
             HUB? ? OR CIRCL??? OR CIRCULAR??)
S22       276   S4 AND RING? ?
S23        92   21AND22
S24       728   S21:S22 AND (S6:S9 OR ROD??)
S25        37   23AND24
S26         3   S25 AND (MR OR MRI OR NMR OR MAGNETIC()RESONANCE)
S27        37   S1 OR S20 OR S26
S28        58   S4 AND (RODS OR SPOKES)
S29         5   S28 AND (MR OR MRI OR NMR OR MAGNETIC()RESONANCE)
S30         3   S29 NOT S27


File 342:Derwent Patents Citation Indx  1978-01/200309
       (c) 2003 Thomson Derwent
*File 342: Updates 200160-200209 replaced. See HELP NEWS 342.
Alert feature enhanced for multiple files, etc. See HELP ALERT.


Set     Items   Description
S1          7   AU=VESTER? AND AU=RENZ?
S2       2433   IC='A61B-005/055':IC='A61B-005/0555'
S3        298   IC='G01R-033/34':IC='G01R-033/345'
S4          5   S1 AND S2:S3
S5          5   S1 AND ANTENNA?????
S6          6   S4 OR S5
S7          1   S1 NOT S6
? s pn=DE 4238831
      S8        1  PN=DE 4238831
? map pn

1 Select Statement(s), 1 Search Term(s)
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Serial#SD361

1 SearchSaves,  1 Search Term(s)
? map cg/pn=

1 Select Statement(s), 5 Search Term(s)
Serial#SD362

1 SearchSaves,  5 Search Term(s)
? map ct/pn=

1 Select Statement(s), 1 Search Term(s)
Serial#SD363

1 SearchSaves,  1 Search Term(s)
? map ct/cg=

1 Select Statement(s), 1 Search Term(s)
Serial#SD364

1 SearchSaves,  1 Search Term(s)
? map cg/ct=

1 Select Statement(s), 5 Search Term(s)
Serial#SD365

1 SearchSaves,  5 Search Term(s)
? ex;ex sd364;ex sd363;ex sd362;ex sd361
      S9        4  Serial: SD365
                0  CG=DE 4113120
     S10        0  Serial: SD364
                1  PN=DE 4113120
     S11        1  Serial: SD363
                1  PN=DE 19746735
                1  PN=DE 19914220
                1  PN=GB 2331587
                1  PN=US 6242917
                1  PN=US 6280385
                3  PN=DE 19746735 + PN=DE 19914220 + PN=GB 2331587 + PN=US
                   6242917 + PN=US 6280385
     S12        3  Serial: SD362
                1  PN=DE 4238831
     S13        1  Serial: SD361
? s s9:s13
     S14        9  S9:S13
? map pn

4 Select Statement(s), 37 Search Term(s)
Serial#SD366

? b 350 347 344 371;ex
       17jun03 09:53:04 User259284 Session D2260.3


SYSTEM:OS  - DIALOG OneSearch
  File 350:Derwent WPIX  1963-2003/UD,UM &UP=200338
         (c) 2003  Thomson Derwent
  File 347:JAPIO  Oct 1976-2003/Feb(Updated 030603)
         (c) 2003 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run.  See HELP NEWS 347 for details.
  File 344:Chinese Patents Abs  Aug 1985-2003/Mar
         (c) 2003 European Patent Office
  File 371:French Patents  1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.
*File 371: This file is not currently updating. The last update is 200209.


Set     Items   Description
S1         14   S1:S3
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17jun03 09:54:05 User259284 Session D2260.4

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SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R)  1966-2003/Jun W2
        (c) format only 2003 The Dialog Corp.
*File 155: Medline has been reloaded and accession numbers have
changed.  Please see HELP NEWS 155.
  File   2:INSPEC  1969-2003/Jun W2
        (c) 2003 Institution of Electrical Engineers
*File   2: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File   5:Biosis Previews(R)  1969-2003/Jun W2
        (c) 2003 BIOSIS
  File   6:NTIS  1964-2003/Jun W3
        (c) 2003 NTIS, Intl Cpyrght All Rights Res
*File   6: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File   8:Ei Compendex(R)  1970-2003/Jun W2
        (c) 2003 Elsevier Eng.  Info. Inc.
*File   8: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File  73:EMBASE  1974-2003/Jun W2
        (c) 2003 Elsevier Science B.V.
*File  73: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File 987:TULSA (Petroleum Abs)  1965-2003/Jun W3
        (c)2003 The University of Tulsa
  File  94:JICST-EPlus  1985-2003/Jun W3
        (c)2003 Japan Science and Tech Corp(JST)
  File  35:Dissertation Abs Online  1861-2003/May
        (c) 2003 ProQuest Info&Learning
  File 144:Pascal  1973-2003/Jun W1
        (c) 2003 INIST/CNRS
  File 105:AESIS  1851-2001/Jul
        (c) 2001 Australian Mineral Foundation Inc
*File 105: This file is closed (no updates)
  File  99:Wilson Appl. Sci & Tech Abs  1983-2003/Apr
        (c) 2003 The HW Wilson Co.
  File  58:GeoArchive  1974-2003/Apr
        (c) 2003 Geosystems
  File  34:SciSearch(R) Cited Ref Sci  1990-2003/Jun W2
        (c) 2003 Inst for Sci Info
  File 434:SciSearch(R) Cited Ref Sci  1974-1989/Dec
        (c) 1998 Inst for Sci Info
  File 292:GEOBASE(TM)  1980-2003/Jun
        (c) 2003 Elsevier Science Ltd.
  File  89:GeoRef  1785-2003/Jun B2
        (c) 2003 American Geological Institute
*File  89: Truncate SH codes for a complete retrieval.
  File  65:Inside Conferences  1993-2003/Jun W3
        (c) 2003 BLDSC all rts. reserv.
  File 350:Derwent WPIX  1963-2003/UD,UM &UP=200338
        (c) 2003  Thomson Derwent
  File 347:JAPIO  Oct 1976-2003/Feb(Updated 030603)
        (c) 2003 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run.  See HELP NEWS 347 for details.


Set     Items   Description
S1      23120   (SPOKE?? OR ROD??)(3N)(WHEEL?? OR RING?? OR RADIUS OR RADI-
             AL???? OR HUB??)
S2         79   S1 AND (NMR OR MRI OR MAGNETIC()RESONANCE)
S3          1   S2 AND ANTENNA????
S4      46514   (WHEEL?? OR RING?? OR CIRCLE OR CIRCULAR)(3N)(RADIUS OR RA-
             DIAL???? OR HUB??)
S5       1064   ANTENNA???? AND (SPOKES OR RODS)
S6       4092   (NMR OR MRI OR MAGNETIC()RESONANCE) AND (SPOKES OR RODS)
S7      37891   (SPOKES OR RODS) AND (WHEEL?? OR RING?? OR RADIUS OR RADIA-
```

		L???? OR HUB??)
S8	24	1AND6
S9	0	4AND6
S10	11	5AND6
S11	284	7AND6
S12	1888	(SPOKES OR RODS) AND S4
S13	0	11AND12
S14	34	S8:S10
S15	33	S14 NOT S3
S16	7	S15 AND ANTENNA????/TI,ID,DE
S17	27	RD S15 (unique items)
S18	7	16AND17
S19	20	S17 NOT S18
S20	229	ANTENNA?????(6N)(SPOKES OR RODS)
S21	4	S20 AND (NMR OR MRI OR MAGNETIC()RESONANCE)
S22	0	S21 NOT S14

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      17jun03 10:06:57 User259284 Session D2260.5


SYSTEM:OS  - DIALOG OneSearch
  File 348:EUROPEAN PATENTS  1978-2003/Jun W01
        (c) 2003 European Patent Office
  File 349:PCT FULLTEXT  1979-2002/UB=20030605,UT=20030529
        (c) 2003 WIPO/Univentio
  File  16:Gale Group PROMT(R)  1990-2003/Jun 17
        (c) 2003 The Gale Group
*File  16: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
  File 583:Gale Group Globalbase(TM)  1986-2002/Dec 13
        (c) 2002 The Gale Group
*File 583: This file is no longer updating as of 12-13-2002.


Set     Items   Description
S1        133   ANTENNA?????(6N)(SPOKES OR RODS)
S2       1347   ANTENNA?????(8N)(MRI OR NMR OR MR OR RESONANCE)
S3          9   1AND2
S4          9   RD S3 (unique items)
S5       1322   RADIAL??(5N)(CURRENT?? OR AMPERAGE??)
S6          9   2AND5
S7          9   S6 NOT S4

      17jun03 10:15:11 User259284 Session D2260.6


File 342:Derwent Patents Citation Indx  1978-01/200309
       (c) 2003 Thomson Derwent
*File 342: Updates 200160-200209 replaced. See HELP NEWS 342.
Alert feature enhanced for multiple files, etc. See HELP ALERT.

      Set  Items  Description
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      S1       1  PN=US 4620155
? s cg=us 4620155
      S2       1  CG=US 4620155
? s ct=us 4620155
      S3      37  CT=US 4620155
? s s1:s3
      S4      39  S1:S3
? map cg/pn=
Processing MAP

26 Select Statement(s), 355 Search Term(s)
Serial#SD367

1 SearchSaves,  355 Search Term(s)
? map ct/pn=

25 Select Statement(s), 327 Search Term(s)
Serial#SD368

1 SearchSaves,  327 Search Term(s)
? map pn

10 Select Statement(s), 119 Search Term(s)
Serial#SD369

1 SearchSaves,  119 Search Term(s)
? b 350 347 344 371;ex;ex sd368;ex sd367
      17jun03 10:16:25 User259284 Session D2260.7

SYSTEM:OS  - DIALOG OneSearch
  File 350:Derwent WPIX  1963-2003/UD,UM &UP=200338
        (c) 2003  Thomson Derwent
  File 347:JAPIO  Oct 1976-2003/Feb(Updated 030603)
        (c) 2003 JPO & JAPIO
```

*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run. See HELP NEWS 347 for details.
File 344:Chinese Patents Abs Aug 1985-2003/Mar
(c) 2003 European Patent Office
File 371:French Patents 1961-2002/BOPI 200209
(c) 2002 INPI. All rts. reserv.
*File 371: This file is not currently updating. The last update is 200209.

Set	Items	Description
S1	50	S1:S9
S2	262	S2:S25
S3	294	S3:S27
S4	505	S1:S3
S5	0	S4 AND SPOKES
S6	4	S4 AND RODS
S7	27	S4 AND (RADIUS??? OR RADII OR RADIAL??? OR HUB OR HUBS)
S8	0	S4 AND SPOKE??
S9	11	S4 AND ROD?????
S10	101	S4 AND CURRENT
S11	0	S4 AND (RADIUS??? OR RADII OR RADIAL??? OR HUB OR HUBS OR - SPOKE??)(5N)(CURRENT OR CURRENTS OR AMPERAGE??)
S12	1	S4 AND (RADIUS??? OR RADII OR RADIAL??? OR HUB OR HUBS OR - SPOKE??)(5N)CONDUCT??????
S13	82	S4 AND ANTENNA???
S14	12	10AND13
S15	6	(S6:S9 OR S12) AND ANTENNA????
S16	18	S14:S15

17jun03 10:22:13 User259284 Session D2260.8

File 987:TULSA (Petroleum Abs) 1965-2003/Jun W4

Set	Items	Description
S1	1364	ANTENNA????
S2	125	S1 AND (MR OR MRI OR NMR OR MAGNETIC()RESONANCE)
S3	6	S2 AND RADIAL???
S4	0	S2 AND SPOKES
S5	0	S2 AND RODS
S6	0	S2 AND ROD????
S7	0	S2 AND SPOKE????
S8	20	S2 AND CURRENT
S9	0	S2 AND WHEEL??
S10	23	S3 OR S8
S11	20	S2 AND CONDUCT?????????
S12	10	S11 NOT S10

17jun03 11:38:18 User259284 Session D2261.1

File 2:INSPEC 1969-2003/Jun W2
(c) 2003 Institution of Electrical Engineers
*File 2: Alert feature enhanced for multiple files, duplicates removal, customized scheduling. See HELP ALERT.

Set	Items	Description
S1	128707	R1:R39
S2	62811	R1:R40
S3	175990	S1:S2 OR ANTENNA???? OR WAVEGUIDE??? OR WAVE()GUIDE??
S4	22643	R1:R4 OR R6:R9
S5	263628	R1:R23 OR MRI OR NMR OR MAGNETIC()RESONANCE??
S6	264083	S4:S5
S7	6796	3AND6
S8	1	S7 AND SPOKES
S9	338	S7 AND (MRI OR NMR OR MAGNETIC()RESONANCE??)
S10	4	S9 AND RADIAL??
S11	0	AU=RENZ W?
S12	34	AU=RENZ, W?
S13	14	AU=VESTER, M??
S14	17	AU=VESTER, M?
S15	48	S12:S14
S16	8	6AND15
S17	2	3AND15
S18	9	S16:S17
S19	17	S7 AND (GUID??? OR WAVEGUID??? OR ANTENNA????)(3N)RADIAL
S20	21	S7 AND (GUID??? OR WAVEGUID??? OR ANTENNA????)(3N)RADIAL??
S21	0	S7 AND (GUID??? OR WAVEGUID??? OR ANTENNA????)(3N)SPOKE??
S22	18	S7 AND (GUID??? OR WAVEGUID??? OR ANTENNA????)(3N)(ROD OR RODS)
S23	39	S20:S22 NOT S18
S24	23	S23 AND (ROUND OR CIRCL??? OR CIRCULAR? OR RING???? OR DIAMETER? OR CIRCUMFEREN? OR RADIUS?? OR RADII)
S25	0	S23 AND ARC???

1/9/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013457177 **Image available**
WPI Acc No: 2000-629120/**200061**
XRPX Acc No: N00-466161
Magnet resonance transmission antenna - has transmission elements each of which generates linear polarised magnetic field and are coupled for generating circular polarised overall magnetic field
Patent Assignee: SIEMENS AG (SIEI)
Inventor: NISTLER J; RENZ W
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 19914220	A1	20001026	DE 1014220	A	19990329	200061	B
US 6242917	B1	20010605	US 2000497638	A	20000203	200133	

Priority Applications (No Type Date): DE 1014220 A 19990329
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19914220	A1		3	H01Q-021/24	
US 6242917	B1			G01V-003/00	

Abstract (Basic): DE 19914220 A
The transmission antenna includes at least two transmission elements (1,2) each of which generates a linear polarised magnetic field. The single magnetic fields superimpose to an overall magnetic field. The transmission elements are so coupled that a transmission current (I) supplied to one transmission element generates a phase delayed couple current (I') in the other transmission element.
The transmission elements generate a circular polarised overall magnetic field. Preferably, the transmission elements are coupled in an inductive, capacitive or inductive-capacitive manner and are tuned to a common resonance frequency (f).
ADVANTAGE - Provides simple antenna with pure circular polarised overall magnetic field.
Dwg.1,2/2

2/9/10 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009888784 **Image available**
WPI Acc No: 1994-168700/199421
XRPX Acc No: N94-132820
HF arrangement for NMR tomography appts - includes surface coil inductively coupled to HF transmission antenna, and electronic switch for damping

Applicant

Patent Assignee: SIEMENS AG (SIEI)
Inventor: **RENZ W; VESTER M**
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 4238831	A1	19940519	DE 4238831	A	19921117	199421	B

Priority Applications (No Type Date): DE 4238831 A 19921117
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4238831	A1		6	G01R-033/36	

Abstract (Basic): DE 4238831 A
The HF device has a HF transmitter coupled to a transmission antenna (3) for initiating nuclear magnetic resonance within the body. The resulting HF signals are detected by a HF receiver using a surface coil (10) inductively coupled with the transmission antenna. The HF transmission antenna is constructed as a round hollow waveguide of a whole body resonator(15).
Pref. the surface coil is provided with an electronic switch (12) for damping the inductive coupling between the surface coil and the transmission antenna during the transmission cycle.
USE/ADVANTAGE - Object examination, esp. human body. Surface coil is employed in both transmission and reception cycles.
Dwg.1/4

Title Terms: HF; ARRANGE; NMR; TOMOGRAPHY; APPARATUS; SURFACE; COIL; INDUCTIVE; COUPLE; HF; TRANSMISSION; ANTENNA; ELECTRONIC; SWITCH; DAMP
Derwent Class: S01; S03; S05; V02
International Patent Class (Main): G01R-033/36
File Segment: EPI
Manual Codes (EPI/S-X): S01-E02A; S01-H05; S03-E07; S05-D02B1; V02-F01G
?

16/9/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004396319
WPI Acc No: 1985-223197/**198536**
XRAM Acc No: C85-097229
XRPX Acc No: N85-167542
Electromagnetic shield for **antennae** of borehole logging devices - has slots which pass **radially** outward from support along plane which passes through axis of pipe
Patent Assignee: SCHLUMBERGER TECHNOLOGY CORP (SLMB)
Inventor: CLARK B
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4536714	A	19850820	US 82368922	A	19820416	198536	B
US 32913	E	19890425	US 8776635	A	19870723	198919	

Priority Applications (No Type Date): US 82368922 A 19820416
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4536714	A		8		

Abstract (Basic): US 4536714 A
Transmitting and receiving **antenna** coils are wound on insulating media around the axis of a support that includes an elongated electrically conductive pipe. A shield for shielding each coil of the device reduces spurious electromagnetic field components (esp. transverse magnetic components) while not interfering with desirable transverse electric components.
The shield for each coil comprises a hollow closed-end cylinder mounted on the pipe and surrounding the coil, the cylinder being formed of an electrically conductive material and having a series of equally spaced slots. Each slot extends **radially** outward from the support along a plane which passes through the axis of the pipe so as to pass through the ends and sides of the cylinder. The defined slots in the cylinder form a series of elongated cylindrical side sections, each of which is joined to the pipe by a pair of opposing end sectors.
ADVANTAGE - Transmission and/or reception of spurious signals such as transverse magnetic mode noise is reduced
Title Terms: ELECTROMAGNET; SHIELD; **ANTENNA**; BOREHOLE; LOG; DEVICE; SLOT; PASS; **RADIAL**; OUTWARD; SUPPORT; PLANE; PASS; THROUGH; AXIS; PIPE
Derwent Class: H01; S03; V04; X25
International Patent Class (Additional): G01V-003/30; H01Q-001/52

18/9/4
DIALOG(R)File 2:INSPEC

Applicant

5051534 INSPEC Abstract Number: A9520-8760I-002, B9510-7510B-275
Title: Finite element computation of the electromagnetic fields produced in the body by **magnetic resonance** imaging surface coils
Author(s): Le Dour, O.; **Vester, M.**; Henninger, P.; **Renz, W.**
Author Affiliation: ENSPS, Univ. Louis Pasteur, Strasbourg, France
Conference Title: Electric and Magnetic Fields. From Numerical Models to Industrial Applications. Proceedings of the Second International Workshop p.257-60
Editor(s): Nicolet, A.; Belmans, R.
Publisher: Plenum, New York, NY, USA
Publication Date: 1995 Country of Publication: USA xii+376 pp.
ISBN: 0 306 44991 9
Conference Title: Electric and Magnetic Fields. From Numerical Models to Industrial Applications
Conference Date: 17-20 May 1994 Conference Location: Leuvan, Belgium
Language: English Document Type: Conference Paper (PA)
Treatment: Theoretical (T)
Abstract: The **magnetic resonance** imaging (**MRI**) radiofrequency (RF) surface coil is a circular or rectangular conducting loop closed by a capacitor. In **MRI**, it plays the role of a magnifying glass, providing high resolution images with a high signal-to-noise ratio (SNR) on small regions of interest. The purpose of this study was to evaluate the uniformity of the magnetic RF field, the amplitude of EM fields, currents, and power losses in the body for different models of surface coils, in order to determinate the best coil design and the most likely improvements most likely to minimize the currents induced in the body by the coil-patient coupling. (5 Refs)
Subfile: A B

19/9/3 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

03861362 INSPEC Abstract Number: A91047247, C91026360
Title: Correction of distortion of **magnetic resonance** (MR) pictures for MR-guided robotic stereotactic procedures
Author(s): Jonckheere, E.A.; Yik San Kwoh; Woei Chyn Chu; Bavarian, B.
Author Affiliation: Dept. of Radiol., CT Res., Memorial Med. Center, Long Beach, CA, USA
Journal: Optical Engineering vol.29, no.12 p.1469-77
Publication Date: Dec. 1990 Country of Publication: USA
CODEN: OPEGAR ISSN: 0091-3286
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: Deals with the correction of the distortion of **magnetic resonance** pictures due to the presence of bulky stereotactic surgical equipment or other kinds of ferromagnetic perturbation. The distortion is measured over a **ring** of calibration **rods** distributed around the patient's head. This boundary information is used to correct the distortion all over the transverse scan plane. The unique feature of the proposed approach is that the error all over the transverse plane is bounded by the error around the **ring** of **rods**. This is accomplished by making use of subharmonic functions. (11 Refs)
Subfile: A C

19/9/18 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008717546 **Image available**
WPI Acc No: 1991-221565/199130
XRPX Acc No: N91-169066
Method of site shimming on permanent magnets - has ferromagnetic pieces mounted on **radial rods** with plates rotatable around **rods** to produce error field cancelling induced perturbations
Patent Assignee: GEN ATOMICS (GEAT)
Inventor: BRENEMAN B C; SARWINSKI R E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5003276	A	19910326	US 89392609	A	19890811	199130	B

Priority Applications (No Type Date): US 89392609 A 19890811

Abstract (Basic): US 5003276 A
Ferromagnetic pieces are mounted on a number of nonmagnetic **radial rods** located at desired locations parallel to a pole face of a permanent magnet used in a **magnetic resonance** imaging apparatus. The pieces comprise plates which are translatable **radially** along each **rod**. Each rod carrying the plates are each rotatable about the rod axis to produce an error field cancelling environmentally induced, low order perturbations.
The plates are mounted on **radial rods** positioned at equal angles from one another, preferably thirty degrees apart and arranged as **spokes** of a **wheel**.
USE/ADVANTAGE - For **MRI** systems. Improved field uniformity. Easier line tuning. (9pp Dwg.No.1/8)
Title Terms: METHOD; SITE; PERMANENT; MAGNET; FERROMAGNETIC; PIECE; MOUNT; RADIAL; ROD; PLATE; ROTATING; ROD; PRODUCE; ERROR; FIELD; CANCEL; INDUCE; PERTURBATION

19/9/20 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007136928
WPI Acc No: 1987-136925/198720
XRPX Acc No: N87-102592
Nuclear spin tomography equipment for proton distribution imaging - uses ferromagnetic rod arrangement to homogenise applied background magnetic field
Patent Assignee: SIEMENS AG (SIEI)
Inventor: FRESE G; LADWEIN K G
Number of Countries: 005 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 3540080	A	19870514	DE 3540080	A	19851112	198720	B
EP 222281	A	19870520	EP 86115160	A	19861031	198720	
US 4748413	A	19880531	US 86926226	A	19861103	198824	
EP 222281	B	19910130				199105	
DE 3677324	G	19910307				199111	

Priority Applications (No Type Date): DE 3540080 A 19851112
Cited Patents: US 4240439; 4.Jnl.Ref; JP 59060346
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3540080	A		5		
EP 222281	A	G			
Designated States (Regional): DE FR GB NL					
US 4748413	A		5		
EP 222281	B				
Designated States (Regional): DE FR GB NL					

Abstract (Basic): DE 3540080 A
Magnetic background and gradient fields are applied to an investigated object by coils (1-4,7-9). The object is subjected to HF pulses from a HF device (9,13-17) which detects the nuclear resonance signals from the object. A further arrangement (23,-25) homogenises the applied background magnetic field.
Rods (23), at least partly made of ferromagnetic material, are arranged in the region of action of the background magnetic field. The **rods** are of suitable shape, size, disposition, number and length to homogenise the field. The **rods** are passed through holes in clamp rings (24) in which they are held.
USE/ADVANTAGE - E.g. medical diagnosis. Operates without use of auxiliary currents. Forming images by stimulating hydrogen atom nucleus
Abstract (Equivalent): EP 222281 B
Nuclear spin tomography device for examining an object (5) with the aid of nuclear **magnetic resonance** having coils (1, 2, 3, 4, 7, 8, 9) for applying fundamental and gradient magnetic fields to the object under examination (5), having a high frequency means (9, 13, 14, 15, 16, 17) which irradiates the object under examination (5) with high frequency pulses and picks up the nuclear resonance signals radiated from the object under examination (5), and having **rods** (23) of ferromagnetic material for homogenising the magnetic fields, characterised in that in order to correct basic field inhomogeneities the **rods** (23) have over their length regions (27, 28) with different magnetic properties. (6pp)
Abstract (Equivalent): US 4748413 A
The **magnetic resonance** appts has several **rods** consisting at lease partially of ferro-magnetic material and a structure for supporting the **rods** in the fundamental magnetic field. The supporting structure may be in the form of **rings** with the **rods** extending therethrough at selected positions, either individually or in groups. The location, cross-section, length, shape and number of **rods** are selected as needed for homogenising the fundamental field.
The fundamental magnetic field is generated using several coils and an outside jacket surrounding the coils. The rings are attached to the outside jacket
Title Terms: NUCLEAR; SPIN; TOMOGRAPHY; EQUIPMENT; PROTON; DISTRIBUTE; IMAGE; FERROMAGNETIC; ROD; ARRANGE; HOMOGENISE; APPLY; BACKGROUND;

27/9/2 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

05133997 **Image available**
ORTHOGONAL **ANTENNA** FOR **MRI** INSTRUMENT

PUB. NO.: 08-089497 [JP 8089497 A]
PUBLISHED: April 09, 1996 (19960409)
INVENTOR(s): ASAKO HIROFUMI
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 06-254405 [JP 94254405]
FILED: September 23, 1994 (19940923)
INTL CLASS: [6] **A61B-005/055**; **G01R-033/34**; G01R-033/20
JAPIO CLASS: 28.2 (SANITATION -- Medical); 46.1 (INSTRUMENTATION -- Measurement)

ABSTRACT

PURPOSE: To provide an orthogonal **antenna** for an **MRI** instrument without sensitivity difference in the flux direction of a static magnetic field and suitable for head image picking-up by providing first and second coil elements, etc., set in mutually orthogonal direction containing a conductor **ring** shaped and its part is cut.
CONSTITUTION: An orthogonal **antenna** has three coil elements 10, 20 and 30. The coil elements 10 (A-E-B) and 20 (C-E-D) are formed in a shape a part of a **circle**, egg or oval shape is cut, and set **geometrically** and mutually orthogonal. On the other hand, the coil element 30 (A-C-B-D-A) with a main composing element of almost **circular** conductor is connected to each terminals A-D of the elements 10 and 20 with a 90 deg. interval. The elements 10 and 20 are mutually connected at the top E. Thus, head image picking-up is performed inserting the head of a testee into the **antenna** instrument formed like a helmet.

21/9/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012221192 **Image available**
WPI Acc No: 1999-027298/**199903**
XRAM Acc No: C99-008545
XRPX Acc No: N99-021064
Radio frequency **coil** for magnetic resonance imaging system - comprises a high strength, stiff internally self-supporting **conductor** formed into a radio frequency resonant **coil**
Patent Assignee: TOSHIBA AMERICA MRI INC (TOKE)
Inventor: CARLSON J W; KAUFMAN L
Number of Countries: 003 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
GB 2326715	A	19981230	GB 988013	A	19980415	199903	B
JP 11056814	A	19990302	JP 98181234	A	19980626	199919	
US 6011393	A	20000104	US 97883083	A	19970626	200008	

Priority Applications (No Type Date): US 97883083 A 19970626
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2326715	A		35	G01R-033/34	
JP 11056814	A		11	A61B-005/055	
US 6011393	A			G01R-033/341	

Abstract (Basic): GB 2326715 A
A radio frequency **coil** (12) for a magnetic resonance imaging system comprises a high strength, relatively stiff internally self-supporting **conductor** formed into a radio frequency resonant **coil** that is adapted to couple radio frequency signals to and/or from a body located within an imaging volume of a magnetic resonance imaging system.
USE - Radio frequency **coil** for magnetic resonance imaging system, operating at 3-64 MHz to couple radio frequency energy to and/or from body tissue or other objects located within an imaging volume of a magnetic resonance imaging system.
ADVANTAGE - The Cu-Ag alloy **conductor** has high strength, relatively high **conductivity**, it provides self-supporting strength and stiffness in the RF **coil** structure instead of depending upon the strength and stiffness of an external insulating support structure. The Cu-Ag alloy can be bent to conform with a desired shape without heating.
Dwg.2a,6a/
8

Title Terms: RADIO; FREQUENCY; **COIL**; MAGNETIC; RESONANCE; IMAGE; SYSTEM; COMPRISE; HIGH; STRENGTH; STIFF; INTERNAL; SELF; SUPPORT; **CONDUCTOR**; FORMING; RADIO; FREQUENCY; RESONANCE; **COIL**
Derwent Class: A85; P31; S01; S03; V02
International Patent Class (Main): A61B-005/055; G01R-033/34; G01R-033/341
International Patent Class (Additional): G01R-033/32
File Segment: CPI; EPI; EngPI
Manual Codes (CPI/A-N): A12-E04; A12-E08B
Manual Codes (EPI/S-X): S01-E02A2; S01-E02A8A; S01-H05; S03-E07A; V02-F01G; V02-F03B
Polymer Indexing (PS):
<01>
001 018; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88; H0000; P1741 ; P1752
002 018; P0737-R P0635 H0293 F70 D01 D18
003 018; ND01; Q9999 Q7114-R; Q9999 Q7374-R Q7330; Q9999 Q7421-R Q7330; K9347-R K9790; B9999 B5243-R B4740; B9999 B3270 B3190; K9552 K9483; B9999 B4035 B3930 B3838 B3747

21/9/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011880086 **Image available**

WPI Acc No: 1998-296996/**199826**
XRPX Acc No: N98-232340
MRI scanning device RF surface **coil** for high resolution medical imaging of e.g. lens of human eye - is made of trace of copper@ arranged in loop, with trace mounted on flexible substrate and having thickness sufficient to provide RF skin effect
Patent Assignee: MAGNETIC VISION TECHNOLOGIES INC (MAGN-N)
Inventor: HROVAT M I
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5751146	A	19980512	US 94347799	A	19941201	199826	B
			US 96754745	A	19961121		

Priority Applications (No Type Date): US 94347799 A 19941201; US 96754745 A 19961121
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5751146	A		10	G01R-033/20	Cont of application US 94347799

Abstract (Basic): US 5751146 A

The surface **coil** is made of a trace of a high **conductivity** material esp. copper having a length, width and thickness and having a surface defined by the length and the width. The **coil** has a radius and a longitudinal axis at the center of the **coil**. The trace is arranged in a loop with one end in proximity to the other end with the surface facing the inside of the loop, where the surface is parallel to the longitudinal axis of the **coil**.

The ratio of the width of the **coil** to the radius of the **coil** is 0.3 or greater and the thickness of the trace is sufficient to provide an rf skin effect. Various circuit designs may be used for inductively coupling the decoupling the surface **coil** from a volume **coil** during rf excitation.

ADVANTAGE - Provides improved sensitivity and signal-to-noise characteristics in receiver **coil** so as to permit rapid high-resolution imaging of small structures esp. eye. Avoids difficulties in awkwardness in placement of reception **coils** in position over the eye and in maintaining that position, even while being more easily tolerated by the patient during the MRI scanning process.

Dwg.2/7

Title Terms: MRI; SCAN; DEVICE; RF; SURFACE; **COIL**; HIGH; RESOLUTION; MEDICAL; IMAGE; LENS; HUMAN; EYE; MADE; TRACE; COPPER; ARRANGE; LOOP; TRACE; MOUNT; FLEXIBLE; SUBSTRATE; THICK; SUFFICIENT; RF; SKIN; EFFECT
Derwent Class: S01; S03; S05; V02
International Patent Class (Main): G01R-033/20
File Segment: EPI
Manual Codes (EPI/S-X): S01-E02A2; S01-E02A8A; S03-E07A; S05-D02B1; V02-F01G; V02-F03B

21/9/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010480487 **Image available**
WPI Acc No: 1995-381808/**199549**
XRAM Acc No: C95-165068
XRPX Acc No: N95-279612
Coils for use in nuclear magnetic resonance imaging - **coils** are made from flexible material that can conform to irregular shaped areas of patient's anatomy, and is permeable to electromagnetic radiation
Patent Assignee: MEDRAD INC (MEDR-N); UNIV PENNSYLVANIA (UYPE-N)
Inventor: KRESSEL H Y; LENKINSKI R E
Number of Countries: 000 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5435302	A	19950725	US 88242479	A	19880909	199549	B
			US 90477182	A	19900205		
			US 90618527	A	19901126		
			US 92854798	A	19920323		
			US 93124847	A	19930922		

Priority Applications (No Type Date): US 88242479 A 19880909; US 90477182 A 19900205; US 90618527 A 19901126; US 92854798 A 19920323; US 93124847 A 19930922

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5435302	A		9	A61B-005/055	Cont of application US 88242479 Cont of application US 90477182 Cont of application US 90618527 Cont of application US 92854798

Abstract (Basic): US 5435302 A

A flexible surface **coil** (2) for placing around a patient's hand (4) to detect electromagnetic radiation emanating therefrom. Said **coil** (2) comprises a mask (6), made from polyurethane, PVC or similar material, and incorporates a receiving **antenna** (8), made from a flexible and conforming material of electrically **conducting** gold, copper, silver or aluminium. Said **antennae** (8) receive nuclear magnetic resonance (NMR) signals emitted from the patient's orbits. A connector (12) connects the **antennae** (8) through the mask (6) to a matching and detaining network. Capacitors (20) tune the **coil** to a desired frequency. An adjustable securing strap (16) fitted with hook and loop fasteners enables the mask to fit snugly around the patient's head, conforming with irregular shaped areas.

Also claimed is a similar device for fitting around a patient's neck. The conforming **coil** (24) is made in two half shells (26, 28), again of polyurethane or PVC, joined by a plastic hinge (38). A connector (32), connected to **antenna** (30) through-half shell (26) is connected to matching and detuning network (34). Fastening panels (40) fitted with hook and loop fastening strips, holds the device in place.

USE - For use in NMR imaging process.

ADVANTAGE - Fits closely around the patient's anatomy to provide high resolution imaging, being able to fit comfortably around patient's having different sized anatomies.

Dwg.1A/4

Title Terms: **COIL**; NUCLEAR; MAGNETIC; RESONANCE; IMAGE; **COIL**; MADE; FLEXIBLE; MATERIAL; CAN; CONFORM; IRREGULAR; SHAPE; AREA; PATIENT; ANATOMICAL; PERMEABLE; ELECTROMAGNET; RADIATE

Derwent Class: A96; P31

International Patent Class (Main): A61B-005/055

File Segment: CPI; EngPI

Manual Codes (CPI/A-N): A04-E02E; A05-G01E; A12-E08; A12-E13; A12-V03C2

Polymer Indexing (PS):

<01>
001 017; R00338 G0544 G0022 D01 D12 D10 D51 D53 D58 D69 D82 Cl 7A; H0000; P1796 P1809
002 017; Q9999 Q7421-R Q7330; Q9999 Q7998 Q7987; B9999 B4035 B3930 B3838 B3747; K9416; ND01; Q9999 Q7498 Q7330; B9999 B4397 B4240; K9790-R

<02>
001 017; P1592-R F77 D01
002 017; Q9999 Q7421-R Q7330; Q9999 Q7998 Q7987; B9999 B4035 B3930 B3838 B3747; K9416; ND01; Q9999 Q7498 Q7330; B9999 B4397 B4240; K9790-R

<03>
001 017; P0000
002 017; Q9999 Q7670; Q9999 Q7421-R Q7330; Q9999 Q7498 Q7330; Q9999 Q7998 Q7987; K9416; ND01

21/9/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

009601840 **Image available**

WPI Acc No: 1993-295388/**199337**

XRPX Acc No: N93-227556

RF volume **coil** for decoupling from other **coils** in system during NMR pulse sequence - has electronic switches connected across

capacitive element in each **coil** operating in response to control signal to provide low impedance path which shunts capacitive elements and de-tunes volume **coil**

Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: FREDERICK P S; HASHOIAN R S; PROST R W
Number of Countries: 006 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5243287	A	19930907	US 92874656	A	19920427	199337	B
EP 568225	A1	19931103	EP 93302994	A	19930419	199344	
IL 105368	A	19950315	IL 105368	A	19930414	199517	
EP 568225	B1	19970917	EP 93302994	A	19930419	199742	
DE 69313914	E	19971023	DE 613914	A	19930419	199748	
			EP 93302994	A	19930419		

Priority Applications (No Type Date): US 92874656 A 19920427
Cited Patents: EP 276510; EP 459569; EP 498539; US 4620155; US 4782298; US 4833409
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5243287	A		13	G01V-003/00	
EP 568225	A1	E	10	G01R-033/36	
Designated States (Regional): CH DE GB LI					
EP 568225	B1	E	11	G01R-033/36	
Designated States (Regional): CH DE GB LI					
DE 69313914	E			G01R-033/36	Based on patent EP 568225
IL 105368	A			G01R-033/24	

Abstract (Basic): US 5243287 A

The RF volume **coil** includes a pair of spaced end loops, each positioned about a central axis, and a set of longitudinal **conductive** elements connected to the pair of spaced end loops and extending between along the direction of the central axis. A set of capacitors is connected in each end loop and has values which tune the **coil** to resonate at the Larmor frequency of the NMR system. A set of de-tuning circuits, each have a pin diode which connects in shunt with a respective one of the capacitors.

A driver circuit which connects to each of the de-tuning circuits, is responsive to a control signal to either produce a voltage which reverse biases the pin diodes and thereby open circuits the shunt path provided for their respective capacitors, or produce a current which forward biases the pin diodes and thereby short circuits the shunt path provided for their respective capacitors to de-tune the **coil** from the Larmor frequency.

ADVANTAGE - Leakage currents are minimal and **coil** performance is not degraded during RF reception.

Dwg.1/5

Abstract (Equivalent): EP 568225 B

An RF volume **coil** for an NMR system which comprises: a pair of spaced end loops, each positioned about a central axis; a set of longitudinal **conductive** elements connected to the pair of spaced ends loops and extending therebetween along the direction of the central axis; a set of capacitors connected to each end loop and having values which tune the **coil** to resonate at the Larmor frequency of the NMR system; a set of detuning circuits, each detuning circuit having a pin diode which connected in shunt with a respective one of said capacitors; and a driver circuit which connects to each of said detuning circuits and is responsive to a control signal to ether produce a voltage which reverse biases said pin diodes and thereby open circuits the shunt path they provide for their respective capacitors, or produce a current which forward biases said pin diodes and thereby short circuits the shunt path they provide for their respective capacitors to thereby detune the **coil** from said Larmor frequency.

Dwg.1/5

Title Terms: RF; VOLUME; **COIL**; DECOUPLE; **COIL**; SYSTEM; NMR; PULSE; SEQUENCE; ELECTRONIC; SWITCH; CONNECT; CAPACITANCE; ELEMENT; **COIL**; OPERATE; RESPOND; CONTROL; SIGNAL; LOW; IMPEDANCE; PATH; SHUNT; CAPACITANCE; ELEMENT; DE; TUNE; VOLUME; **COIL**
Derwent Class: S01; S03; S05; V02
International Patent Class (Main): G01R-033/24; G01R-033/36; G01V-003/00
File Segment: EPI

Manual Codes (EPI/S-X): S01-E02A; S03-E07; S05-D02B1; V02-F01G

21/9/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009188224 **Image available**
WPI Acc No: 1992-315663/**199238**
XRPX Acc No: N92-241554
Error-proof decoupling of transmission and reception **antennae** - has capacitor and inductor parallel network connected via PIN diode to control voltage in series circuit
Patent Assignee: SIEMENS AG (SIEI)
Inventor: KESS H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5144244	A	19920901	US 90584174	A	19900918	199238	B

Priority Applications (No Type Date): EP 89117240 A 19890918
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5144244	A		5	G01R-033/20	

Abstract (Basic): US 5144244 A
The transmission **antenna** for a nuclear magnetic resonance apparatus has a capacitor connected in parallel with it via at least one PIN diode. A reception **antenna** has a capacitor connected directly in parallel with it and an inductor connected in parallel with it via a PIN diode. The PIN diodes are connected to a control voltage in a series circuit. Given a first direction of the control voltage, the PIN diodes are conductive.
The transmission **antenna** is tuned to the nuclear magnetic resonant frequeny due to cut-in of the capacitor and the reception **antenna** is detuned to the cut-in of the inductor. Given a second direction of the control voltage, the reception **antenna** is tuned to the nuclear magnetic resonant frequency and the transmission **antenna** is detuned with respect to the nuclear magnetic resonant frequency. An unwanted, local super-elevation of the RF power cannot occur with this **antenna**.
USE/ADVANTAGE - For calculating spectra or generating image of examination subject. Improved image quality.
Dwg.2/2
Title Terms: ERROR; PROOF; DECOUPLE; TRANSMISSION; RECEPTION; **ANTENNA** ; CAPACITOR; INDUCTOR; PARALLEL; NETWORK; CONNECT; PIN; DIODE; CONTROL; VOLTAGE; SERIES; CIRCUIT
Index Terms/Additional Words: NUCLEAR; MAGNETIC; RESONANCE; APPTS
Derwent Class: Q45; S01; S03; S05; W02
International Patent Class (Main): G01R-033/20
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S01-E02A; S01-H05; S03-E07; S05-D02B1; W02-B08B3

21/9/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009066133 **Image available**
WPI Acc No: 1992-193531/**199224**
XRPX Acc No: N92-146184
Nuclear magnetic resonance imaging appts. - limits voltage across resonance capacitor in HF **antenna** resonance circuit
Patent Assignee: SIEMENS AG (SIEI)
Inventor: DUERR W
Number of Countries: 004 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 489312	A1	19920610	EP 91119851	A	19911121	199224	B
JP 4352943	A	19921208	JP 91343912	A	19911202	199303	
US 5258718	A	19931102	US 91790506	A	19911112	199345	

Priority Applications (No Type Date): DE 4038648 A 19901204
Cited Patents: 01Jnl.Ref; DE 3728863; DE 9012639; EP 262495; EP 276508; EP 315382
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 489312	A1	G	10	G01R-033/36	
Designated States (Regional): DE GB					
US 5258718	A		8	G01R-033/20	
JP 4352943	A			A61B-005/055	

Abstract (Basic): EP 489312 A
The nuclear magnetic resonance imaging appts uses a background magnetic field, gradient fields and a transmission and reception HF **antenna** providing an inductance which is combined with at least one resonance capacitor (11) to form a resonance circuit (10). The voltage (Uc) across the resonance capacitor is limited when the HF **antenna** is operated in transmission mode.
Pref. the voltage (Uc) is limited via a number of opposing Zener diodes (16) or varistors, or alternatively the voltage limiting is effected by detuning the resonance circuit (10).
ADVANTAGE - Eliminate need for oversizing resonator.
Dwg.1/7
Abstract (Equivalent): US 5258718 A
The appts. produces a tomogram of an examination subject and has a high-frequency **antenna** for generating signals to excite nuclear spins in an examination subject and for receiving signals corresp. to the excited nuclear spins. The high-frequency **antenna** has an inductance which forms a resonant circuit in combination with at least one resonance capacitor.
The voltage across the resonance capacitor is limited in a transmission mode of the high-frequency **antenna**. The unit for limiting comprises a number of Zener diodes connected with opposite polarity across the resonance capacitor, a number of varistors connected across the resonance capacitor, or a number of over-voltage arrestors connected across the resonance capacitor.
ADVANTAGE - Avoidance of impermissible peak amplitudes is achieved without the necessity of over-dimensioning the components of the resonant circuit.
Dwg.1/7
Title Terms: NUCLEAR; MAGNETIC; RESONANCE; IMAGE; APPARATUS; LIMIT; VOLTAGE ; RESONANCE; CAPACITOR; HF; **ANTENNA**; RESONANCE; CIRCUIT
Derwent Class: P31; S01; S03; S05
International Patent Class (Main): A61B-005/055; G01R-033/20; G01R-033/36
International Patent Class (Additional): H03H-011/04
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S01-E02A; S01-H05; S03-E07A; S05-D02B1

21/9/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008569650 **Image available**
WPI Acc No: 1991-073685/**199110**
XRPX Acc No: N91-056949
NMR RF probe with electromagnetically isolated transmitter - has receiver coils mounted non-orthogonally and specific geometrical orientation to minimise coupling between them
Patent Assignee: UNIV WASHINGTON (UNIW)
Inventor: ACKERMAN J J H
Number of Countries: 016 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9102262	A	19910221				199110	B
US 4996481	A	19910226	US 89390176	A	19890807	199111	
AU 9062882	A	19910311				199123	
US 5041791	A	19910820	US 90562550	A	19900806	199136	

Priority Applications (No Type Date): US 90562550 A 19900806; US 89390176 A 19890807

Cited Patents: US 2220070; US 2451596; US 3826973; US 4093910; US 4707664; US 4724389; US 4752738; US 4857850; US 4939465; US 4943775
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 9102262 A
Designated States (National): AU CA JP
Designated States (Regional): AT BE CH DE DK ES FR GB IT LU NL SE

Abstract (Basic): WO 9102262 A
The device includes a transmitter coil and a receiver coil mounted non-orthogonally to each other. The coils have a near field radiation pattern from a well defined RF magnetic field. They are geometrically orientated to ensure no significant coupling occurs between them. The coils radiate in to each others field and also in the prescence of the sample.
USE - Co-axial multiple **antenna** surface-coil NMR probes.
(34pp Dwg.No.2/14)
Abstract (Equivalent): US 5041791 A
The RF probe includes a transmitter coil for transmitting RF energy to excite a specimen and receiver coil for sensing the RF energy absorbed or emitted by the specimen. The receiver coil has a primary coil loop for placement immediately adjacent a specimen and a secondary coil loop. The receiver coil loops are in anti-phase and connected in series and the secondary receiver coil loop may be angularly rotated w.r.t. the transmit coil in order to balance the current induced in both receiver coil elements to achieve a zero net induced current from the transmit coil while the primary receiver coil element is in position for taking measurements.
Alternatively, the receiver coil element has a pair of parallel connected anti-phase coil elements, and the primary coil element for placement immediately adjacent the specimen has a reduced inductance and, hence, impedance such that it exhibits an increased sensitivity and greater signal-to-noise ratio.
USE - For magnetic resonance. (10pp)
US 4996481 A
An RF probe (20) for use in magnetic resonance applications includes a transmitter coil (24) for transmitting RF energy to excite a specimen and a receiver coil (28) for sensing the RF energy absorbed or emitted by the specimen wherein the receiver coil is electrically decoupled from the transmitter coil through the geometrical shape and positioning of the receiver coil with respect to the transmitter coil. Both the transmitter and receiver coils are used to produce well defined RF magnetic fields. The technique includes the concept of physically locating multiple elements of either a transmitter or receiver coil such that the net current induced in the receiver coil is equal to zero.
This technique is achieved in a frequency independent manner without orthogonally aligning the receiver coil with the transmitter coil, the coils being suitable for co-axial alignment as well as other alignment.
ADVANTAGE - Readily adaptable to existing devices and protocols. Achieves isolation of 40 dB between transmit and receive **antennae** . (8pp)
Title Terms: NMR; RF; PROBE; ELECTROMAGNET; ISOLATE; TRANSMIT; RECEIVE; COIL; MOUNT; NON; ORTHOGONAL; SPECIFIC; GEOMETRY; ORIENT; MINIMISE; COUPLE
Derwent Class: S01; S03; S05; V02; W02
International Patent Class (Additional): G01R-033/34
File Segment: EPI
Manual Codes (EPI/S-X): S01-E01; S01-H05; S03-E07; S05-D02X; V02-F01; W02-G09

21/9/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008455865 **Image available**
WPI Acc No: 1990-342865/**199046**
XRPX Acc No: N90-262199
Surface **coil** for NMR imaging device - has individually activated

reception loops of differing size or orientation
Patent Assignee: SIEMENS AG (SIEI)
Inventor: ERHARD P; REQUARDT H
Number of Countries: 004 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 396804	A	19901114	EP 89108517	A	19890511	199046	B
US 5097210	A	19920317	US 90582577	A	19900913	199214	

Priority Applications (No Type Date): EP 89108517 A 19890511
Cited Patents: EP 175129; EP 276509; EP 280908; EP 325351; US 4717881; US 4825162
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 396804	A				
Designated States (Regional): DE FR GB					
US 5097210	A		6		

Abstract (Basic): EP 396804 A
The surface **coil** for a nuclear magnetic resonance imaging device a **conductor** device providing different active **coil** segments (I..IV) in the form of reception loops of different size and/or orientation. Each end of each reception loop is coupled to a signal reference line (78) via a controlled capacitance (50,52,54...62) and via a second controlled capacitance (51,53,55...63) to a signal line (79) coupled to an evaluation device (21).
The individual **coil** segments are activated and balanced for resonance, with impedance matching of the lead or the evaluation device (21).
ADVANTAGE - Allows selection of large measuring field with high penetration depth or small measuring field with shallow penetration depth. (10pp Dwg.No. 4/4
Abstract (Equivalent): US 5097210 A
A two-dimensional image of the voltage distribution across a surface at a large number of vlotage test points of a panel under test is extracted by illuminating the surface with an imput beam of optical energy through an electro-optic modulator. The modulator is disposed to allow longitudinal probing geometries such that a voltage on the surface of the panel under test causes a power modulation in the optical energy which can be observed through an area optical sensor (a camera) for use to directly produce a two-dimensional spatially-dependent power modulation image directly representative of the spatially corresp. voltage state on the surface of the panel under test.
Surface crosstalk is minimised by placing the face of the modulator closer to the panel under test than the spacing of voltage sites in the panel under test. The devide may operate in a pass through mode or in a reflective mode.
USE - For testing PCB, IC wafer, or LCD panel.
Title Terms: SURFACE; **COIL**; NMR; IMAGE; DEVICE; INDIVIDUAL; ACTIVATE; RECEPTION; LOOP; DIFFER; SIZE; ORIENT
Derwent Class: S01; S03; S05; V02
International Patent Class (Additional): G01R-033/20; G01R-033/36
File Segment: EPI
Manual Codes (EPI/S-X): S01-E02; S03-E07; S05-D02X; V02-F01

21/9/9 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008441647 **Image available**
WPI Acc No: 1990-328647/**199044**
XRPX Acc No: N90-251609
Surface **coil** for diagnostic NMR appts. - has varying width for matching spacing of examined part to maintain max. signal-to-noise ratio
Patent Assignee: SIEMENS AG (SIEI)
Inventor: KRAUSE N; REQUARDT H
Number of Countries: 004 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week

EP 394508 A 19901031 EP 89107387 A 19890424 199044 B
US 5130656 A 19920714 US 90513855 A 19900424 199231

Priority Applications (No Type Date): EP 89107387 A 19890424
Cited Patents: EP 175129; EP 280908; GB 2159626; US 4717881; US 4793356
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
EP 394508 A
Designated States (Regional): DE FR GB
US 5130656 A 8 G01R-033/20
Abstract (Basic): EP 394508 A

The **coil** (19) has a number of **conductor** sections (19a...19g) coupled together and to a reception circuit via respective switches, the different switch positions determining the surface configuration enclosed by the coupled **conductor** sections. The outer periphery of the **coil** (19) has a width which varies over the length of the **coil** (19), for matching the variations in the spacing of the examined part, e.g. the spine, so that max. signal to noise ratio is obtained over the full length of the examined part.

Pref. the width is a max. at the centre of the **coil** (19) and tapers inwards towards each end.

USE/ADVANTAGE - Accurate examination of spinal column. (9pp Dwg.No.4/6

Abstract (Equivalent): US 5130656 A

The nuclear magnetic resonance appts. for examining a patient has a device for generating a fundamental magnetic field, a device for generating a number of gradient fields in which the patient is disposed, and an induction device for inducing nuclear magnetic resonance signals in the patient. A surface **coil** is connected to a tuning circuit for detecting and transmitting the nuclear magnetic resonance signals. The surface **coil** having a number of **conductor** sections arranged relative to each other and adapted for circumscribing different areas, regions and geometries of a patient in a number of respective combinations. The surface **coil** has a variable width so that the combinations geometrically conform to a local region of interest. A switch selectively electrically connects different groups of the number of **conductor** sections together so that different areas and different regions of the patient can be examined without physical displacement of the **conductor** sections forming the combinations. The switching is adapted to electrically connect a combination so formed to the tuning circuit. USE/ADVANTAGE - Partic. for medical imaging using adjustable surface **coil** for NMR signals. For tomography and spectroscopy. Better contrast obtd. by improved signal to noise ratio of subject emitted signals, with smaller measuring field, and slight penetration depth.

(Dwg. 4/6

Title Terms: SURFACE; **COIL**; DIAGNOSE; NMR; APPARATUS; VARY; WIDTH; MATCH; SPACE; PART; MAINTAIN; MAXIMUM; SIGNAL-TO-NOISE; RATIO
Index Terms/Additional Words: NUCLEAR; MAGNETIC; RESONANCE
Derwent Class: P31; S01; S03; S05; V02
International Patent Class (Main): G01R-033/20
International Patent Class (Additional): A61B-005/05; G01R-033/34
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S01-E; S01-H05; S03-E07; S05-D02X; V02-F01

21/9/10 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008411884 **Image available**
WPI Acc No: 1990-298885/**199040**
XRPX Acc No: N90-229893
Nuclear magnetic resonance tomography appts. for medical diagnosis - connects inner conductors of HF **antenna** to capacitors to provide **waveguide** resonators
Patent Assignee: SIEMENS AG (SIEI)
Inventor: DUERR W
Number of Countries: 003 Number of Patents: 004
Patent Family:
Patent No Kind Date Applicat No Kind Date Week

EP 389868	A	19901003	EP 90104825	A	19900314	199040 B
US 5107217	A	19920421	US 90499771	A	19900327	199219
EP 389868	B1	19950913	EP 90104825	A	19900314	199541
DE 59009642	G	19951019	DE 509642	A	19900314	199547
			EP 90104825	A	19900314	

Priority Applications (No Type Date): DE 3910187 A 19890329
Cited Patents: 1.Jnl.Ref; DE 3237250; EP 94734; EP 257782; EP 262495; EP 301232; US 4742304; US 4792759; EP 257782; EP 262495; EP 301232; EP 94734
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 389868	A				
Designated States (Regional): DE GB					
US 5107217	A		9		
EP 389868	B1	G	13	G01R-033/36	
Designated States (Regional): DE GB					
DE 59009642	G			G01R-033/36	Based on patent EP 389868

Abstract (Basic): EP 389868 A

The tomography appts has a HF **antenna** with a cylindrical sleeve enclosing at least 2 inner conductors (4,5,6,7), extending parallel to the cylinder axis and coupled to termination capacitors (10...13) to provide a **waveguide** resonator for several resonance frequencies.

At least one current path is provided for each resonance frequency, at least one current path incorporating a blocking circuit for the resonance frequency of the other current path. Pref. a blocking circuit is provided at the end of each inner conductor.

ADVANTAGE - Allows use of several resonance frequencies. (12pp Dwg.No.1/9

Abstract (Equivalent): EP 389868 B

Nuclear spin tomograph having a high frequency **antenna** which forms a whole body **waveguide** resonator and contains a cylindrical sheath (2) which is opaque to high frequency and transmits low frequency and surrounds at least one pair of inner conductors (4 to 7) which extend parallel to the cylinder axis, act as inductors given equal resonator frequency and through which opposing currents (J) flow, characterised by the following features of the high frequency **antenna**; (a) the **waveguide** resonator is designed for a plurality of resonator frequencies (f1,f2), (b) provided for each resonant frequency (f1,f2) there is an output of the **waveguide** resonator that is peculiar thereto and decoupled from the at least one further input for the at least one further resonant frequency (f2 or f1), (c) each inner conductor (4 to 7) is active for at least one resonant frequency (f1 or f2), (d) each inner conductor (4 to 7) has at its two ends a number of its resonant frequencies (f1, f2) which current branches conduct to earth and have in each case at least one shortening capacitor (10 to 13) co-determining the respective resonant frequency (f1 or f2), (e) at least one of these current branches contains a block circuit (50 to 53) for the resonant frequency (f2 or f1 respectively) of one of the other current branches.

Dwg.1/9

Abstract (Equivalent): US 5107217 A

The radio-frequency **antenna** for a nuclear magnetic resonance tomography apparatus, comprises a radio frequency-tight and low frequency-transmissive cylindrical sheath having a longitudinal axis. An electrical conductor is disposed inside the cylindrical sheath parallel to the longitudinal axis for defining conductive paths. Each conductive path has an inductance and forming, in combination with a capacitance between that conductive path and the cylindrical sheath, a transmission line resonator having a unique resonant frequency.

Each transmission line resonator has an input for its unique frequency. Each of the respective inputs is decoupled from the other transmission line resonator inputs. A trap circuit is disposed in at least one of the conductive paths for blocking the resonant frequency of at least one other conductive path.

ADVANTAGE - Allows investigation of different of different atoms without substituting different resonator

Title Terms: NUCLEAR; MAGNETIC; RESONANCE; TOMOGRAPHY; APPARATUS; MEDICAL; DIAGNOSE; CONNECT; INNER; CONDUCTOR; HF; **ANTENNA**; CAPACITOR; **WAVEGUIDE**; RESONANCE

Derwent Class: S03; S05; W02
International Patent Class (Additional): G01R-033/20; G01R-033/36
File Segment: EPI
Manual Codes (EPI/S-X): S03-E07; S05-D02X; W02-B

21/9/11 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008128065 **Image available**
WPI Acc No: 1990-015066/**199002**
XRPX Acc No: N90-011490
MRI RF **coil** for magnetic resonance imaging system - has **conductive** element formed with wide flat portion and U-shaped cross section
Patent Assignee: UNIV CALIFORNIA (REGC)
Inventor: CARLSON J W
Number of Countries: 014 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4878022	A	19891031	US 88257801	A	19881014	199002	B
EP 364061	A	19900418	EP 89300167	A	19890110	199016	
EP 364061	B1	19950308	EP 89300167	A	19890110	199514	
DE 68921537	E	19950413	DE 621537	A	19890110	199520	
			EP 89300167	A	19890110		

Priority Applications (No Type Date): US 88257801 A 19881014
Cited Patents: 1.Jnl.Ref; A3...9049; EP 175129; EP 201084; EP 257782; NoSR.Pub; US 4649348; EP 142077; EP 325351
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4878022	A		7		
EP 364061	A				
	Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE				
EP 364061	B1	E	10	G01R-033/34	
	Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE				
DE 68921537	E			G01R-033/34	Based on patent EP 364061

Abstract (Basic): US 4878022 A
The MRI RF **coil** includes a **conductive** element formed with a relatively wide flat portion directed towards the patient image volume. Associated shaped edges curve away from this flat portion and away from the patient image volume giving a shallow generally U-shaped cross-section.
A substantially flat bight portion with curved, relatively small radius, lips project from either side at a 90 degree orientation away from the proximal flat bight portion of the **conductor**. The width of the **conductor** cross-section is approximately one-half the average radius of the surface **coil** loop.
USE/ADVANTAGE - Medical purposes. Improved signal to noise ratio.
1/7
Abstract (Equivalent): EP 364061 B
An MRI RF surface **coil** for use in a magnetic resonance imaging system including a **conductive** element (10) having a substantially uniform thickness defined by two parallel surfaces for disposition with one surface proximal an image area (24) and the other surface distal thereto, wherein the cross section of said **conductive** element (10) has a flat, i.e. a thin, relatively wide and substantially straight, central portion (12) and associated edges (30a,30b) which curve away from said image area so that the high intensity current distributions at the edges of the flat **conductor** are moved away from the patient body, and said **conductive** element (10) extends about a single loop in a plane parallel to said substantially straight cross-sectional portion.
Dwg.3,4,5/
6
Title Terms: MRI; RF; **COIL**; MAGNETIC; RESONANCE; IMAGE; SYSTEM; **CONDUCTING**; ELEMENT; FORMING; WIDE; FLAT; PORTION; U-SHAPED; CROSS; SECTION
Derwent Class: S03; S05; V02

International Patent Class (Main): G01R-033/34
International Patent Class (Additional): G01R-033/20
File Segment: EPI
Manual Codes (EPI/S-X): S03-E07; S05-D02X; V02-F01

21/9/12 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008107286 **Image available**
WPI Acc No: 1989-372397/**198951**
XRPX Acc No: N89-283446
Surface electrical **coil** for medical NMR imaging - has number of small **coils** positioned over or around specified volume, in petal resonator circuit arrangement
Patent Assignee: BRITISH TECHNOLOGY GROUP LTD (BRTE-N); NAT RES DEV CORP (NATR)
Inventor: MANSFIELD P
Number of Countries: 005 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 347180	A	19891220	EP 89305974	A	19890613	198951	B
GB 2219861	A	19891220	GB 8913585	A	19890613	198951	
US 5143688	A	19920901	US 89365563	A	19890614	199238	
			US 91726161	A	19910702		
GB 2219861	B	19930512	GB 8913585	A	19890613	199319	
EP 347180	B1	19970903	EP 89305974	A	19890613	199740	
DE 68928292	E	19971009	DE 628292	A	19890613	199746	
			EP 89305974	A	19890613		

Priority Applications (No Type Date): GB 8814187 A 19880615
Cited Patents: 1.Jnl.Ref; A3...9105; EP 171741; EP 273484; EP 280908; EP 290315; EP 344293; No-SR.Pub; WO 8701199; WO 8905115; DE 3535463; EP 170514; EP 335534; EP 352824; EP 407579; US 4680548
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 347180	A	E	31		
Designated States (Regional): DE FR NL					
US 5143688	A		18	G01R-033/20	Cont of application US 89365563
EP 347180	B1	E	20	G01R-033/34	
Designated States (Regional): DE FR NL					
DE 68928292	E			G01R-033/34	Based on patent EP 347180
GB 2219861	B			G01R-033/34	

Abstract (Basic): EP 347180 A
The surface electrical **coil** structure for use as a signal receiver and/or transmitterr with the desired magnetic field characteristics and which comprises a set of small **coils** positioned over or around a specified volume each **coil** being singly or severally electrically connected such that the flow of electrical current within each **coil** produces the desired signal response or magnetic field.
Various versions of the petal resonator circuit are proposed. In one series version the petal **coils** could be made of copper strip rather than wire or tubing. Such an arrangement would help to funnel flux through the **coil** and reduce mutual inductance effects. Each single petal would form a split or slotted **coil** resonant circuit which at low frequencies would require additional capacitance to tune but at high frequencies could be machined to form a self resonant circuit element.
ADVANTAGE - Reduces **coil** loading.
4/14
Abstract (Equivalent): EP 347180 B
A surface electrical **coil** structure for use as a signal receiver and/or transmitter in NMR imaging or spectroscopy comprising a plurality N of inductive small electrical **coils** of radius a each positioned on the surface of a volume, said small **coils** being arranged substantially coplanarly in non-overlapping relationship, all of said small **coils** being connected together to act as a single signal receiver or transmitter, and the outer **coils** of said structure being encircled and touched by a hypothetical single loop

larger **coil** of radius b, characterised in that each of said small **coils** is so sized and positioned within said hypothetical **coil** as to make the sensitivity factor F, i.e. the signal-to-noise ratio of the **coil** structure as compared with the signal-to-noise ratio of the hypothetical **coil**, greater than 1 even with the effect of the mutual couplings between the small **coils**, where F = (N a/b) 1/2os theta, and theta is the polar angle between the centre of a small **coil** and the centre of the hypothetical **coil** subtended at a point P within said volume such that cos theta is approximately equal to 1.

Dwg.1/10

Abstract (Equivalent): GB 2219861 B

A surface electrical **coil** structure comprising a plurality of **coils** each positioned on the surface of a volume in non-overlapping relationship, and each **coil** comprising at least one electrical **conductor**, all of said **coils** being connected together by a delay line to form a signal receiver to receive signals from the far field within the volume which at any point is at least equal to the signal received from an equivalent large **coil** embracing the volume, said delay line comprising inductive and capacitive tuning elements, the inductive elements including the inductances of the **coils** and the capacitive elements including at least one added capacitor, said **coils** being each sized and positioned as to minimise the mutual coupling of any **coil** with respect to all the other **coils**. (Dwg.2/2)

Abstract (Equivalent): US 5143688 A

The appts. comprises several **coils**, each **coil** includes at least one electrical **conductor** positioned adjacent to a volume. Each **coil** is electrically connected to provide a desired signal response or magnetic field from the volume, where each **coil** is positioned and sized such that there is a predetermined distance between the electrical **conductors** of each **coil**. The **coils** are not overlapped so signals from the far field, at least equal to those received from an equivalent large **coil**, can be received.

A delay line configuration is connected between the **coils** including several capacitors, each of which has an inductance and a capacitance which is used to tune the delay line. The signals from the **coils** can be received in a parallel arrangement into a single amplifier and receiver circuit in an alternative set-up.

USE/ADVANTAGE - Surface electrical **coil** structures producing magnetic fields for NMR imaging and spectroscopy partic. medical imaging. Improved far field performance over single large loop. (Dwg.8a/14t

Title Terms: SURFACE; ELECTRIC; **COIL**; MEDICAL; NMR; IMAGE; NUMBER; **COIL**; POSITION; SPECIFIED; VOLUME; PETAL; RESONANCE; CIRCUIT; ARRANG

Derwent Class: S01; S03; S05; V02

International Patent Class (Main): G01R-033/20; G01R-033/34

International Patent Class (Additional): G01N-024/04; G01R-033/36

File Segment: EPI

Manual Codes (EPI/S-X): S01-E01; S01-H05; S03-E07; S05-D02X; V02-F01

21/9/13 (Item 13 from file: 350)

DIALOG(R)File 350:Derwent WPIX

008076435 **Image available**

WPI Acc No: 1989-341547/**198947**

XRPX Acc No: N89-260096

Nuclear magnetic resonance imaging appts. - uses HF **coil** set with several resonator **coils** lying in parallel planes

Patent Assignee: PHILIPS PATENTVERWALTUNG GMBH (PHIG); PHILIPS ELECTRONICS NV (PHIG)

Inventor: LEUSIER C G; LEUSSLER C G

Number of Countries: 005 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 342745	A	19891123	EP 89201194	A	19890512	198947	B
DE 3816831	A	19891130	DE 3816831	A	19880518	198949	

US 5003265	A	19910326	US 89350818	A	19890511	199115
EP 342745	B1	19951220	EP 89201194	A	19890512	199604
DE 58909537	G	19960201	DE 509537	A	19890512	199610
			EP 89201194	A	19890512	

Priority Applications (No Type Date): DE 3816831 A 19880518
Cited Patents: 2.Jnl.Ref; A3...9103; EP 142760; EP 200078; EP 281787; No-SR.Pub; US 4733190; EP 273484
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 342745	A	G	6		
	Designated States (Regional): DE FR GB NL				
EP 342745	B1	G	8	G01R-033/34	
	Designated States (Regional): DE FR GB NL				
DE 58909537	G			G01R-033/34	Based on patent EP 342745

Abstract (Basic): EP 342745 A

The nuclear magnetic resonance imaging appts. has a HF **coil** set coupled to a HF transmitter and/or a HF receiver. The HF **coil** set comprises several resonators tuned to the same frequency each resonator comprising a **conductor** loop (11...15) with their ends capacitively coupled. The resonators are inductively coupled with one of the resonators coupled to the HF transmitter or HF receiver.

Pref. the **conductor** loops (11...15) lie in parallel planes with their centres lying along a common line. The resonators may lie along the surface of a cylinder.

ADVANTAGE - Good signal/noise ratio at lower frequencies

Abstract (Equivalent): EP 342745 B

A magnetic resonance examination apparatus, comprising an RF **coil** system which is connectable to an RF transmitter and/or an RF receiver, and more than two resonators which operate simultaneously in the transmission mode or the receiving mode, are tuned to the same frequency, and are arranged in parallel planes, each resonator comprising a **conductor** loop (11 ... 15) which consists of one or more parts and whose ends are capacitively coupled to one another, characterised in that the resonators are arranged on the circumference of a hallon-cylindrical, supporting body (10), that only one resonator (13) is connected to the RF transmitter (3) or to the RF receiver (6), and that the resonators are inductively but not **conductively** complex to one another.

Dwg.1/4

Abstract (Equivalent): US 5003265 A

The magnetic resonance imaging apparatus includes an RF **coil** system coupled to an RF transmitter and an RF receiver. The transmitter and receiver each have an operating frequency. The RF **coil** system has a number of spaced resonators which are tuned to the same frequency. Each resonator has a **conductor** loop having a pair of spaced ends. A capacitor is coupled to each loop for joining the ends of a respective loop to one another. The resonators are so spaced from one another so as to be inductively coupled to one another.

One of the resonators includes a circuit which is adapted to be electrically coupled to the RF transmitter and RF receiver.

The resonators are arranged in a row and an end resonator of the row has the same shape as but smaller loop dimension than the other resonators.

ADVANTAGE - Has good signal to noise ratio. (5pp

Title Terms: NUCLEAR; MAGNETIC; RESONANCE; IMAGE; APPARATUS; HF; **COIL** ; SET; RESONANCE; **COIL**; LIE; PARALLEL; PLANE
Derwent Class: P31; S01; S03; S05; V02
International Patent Class (Main): G01R-033/34
International Patent Class (Additional): A61B-005/05; G01N-024/04; G01R-033/20; G01R-033/36
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S01-E; S01-H05; S03-E07; S05-D02X; V02-F01

21/9/14 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008036878 **Image available**

WPI Acc No: 1989-301990/**198942**
XRPX Acc No: N89-230263
Symmetrical HF **antenna** for nuclear magnetic resonance tomography - has surface wave blocking appts. between **antenna** and asymmetrical line
Patent Assignee: SIEMENS AG (SIEI)
Inventor: DURR W; OPPELT R
Number of Countries: 004 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 337204	A	19891018	EP 89105646	A	19890330	198942	B
DE 3811983	A	19891019	DE 3811983	A	19880411	198943	
US 4922204	A	19900501	US 89330110	A	19890329	199022	
EP 337204	B	19910828				199135	
DE 58900238	G	19911002				199141	

Priority Applications (No Type Date): DE 3811983 A 19880411
Cited Patents: 2.Jnl.Ref; GB 2161940; JP 60235530; US 4028704; US 4031540; US 4631504; US 4682125
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 337204	A	G	5		
Designated States (Regional): DE FR GB					
EP 337204	B				
Designated States (Regional): DE FR GB					

Abstract (Basic): EP 337204 A
The symmetrical HF **antenna** is coupled to an unsymmetrical line via a surface wave blocking device which has an inductance provided by a toroid (2). The latter is pref. wound around an annular core (7) of a high magnetic permeability material.
Pref. the surface wave blocking device (3) comprises 2 coaxial cables (5,6) with the same line length and an equal number of winding turns, wound around a common annular core (7), e.g. over respective halves of the latter. A transmitter (16) is coupled to the coaxial cables (5,6) at one end (9,10) and the radiator halves of the dipole **antenna** (18) are coupled to their opposite ends as the supplied load.
ADVANTAGE - Reduced overall losses.
1/2
Abstract (Equivalent): EP 337204 B
An arrangement for operating a symmetrical high-frequency **antenna** (18), in particular the high-frequency **antenna** (18) of a nuclear magnetic rseonance tomograph, which arrangement is connected to an asymmetrical line and in which there is provided, between the high-frequency **antenna** (18) and the line, a sheath wave trap (2), characterised in that the inductor L of the sheath wave trap (2) is in the shape of a toroid. (4pp)
Abstract (Equivalent): US 4922204 A
For operating the radio-frequency **antenna** of a nuclear magnetic resonance tomography apparatus, the **antenna** is connected to an asymmetrical line. A sheath wave trap is provided between the **antenna** and the line, with the inductor of the sheath wave trap being a toroid.
A low-scatter sheath wave trap is obtained in this manner, particularly suitable for circularly polarised resonators. The trap suppresses difference currents caused by asymmetries, and thus simultaneously functions as a balanced-to-unbalanced transformer (balun). (4pp

Title Terms: SYMMETRICAL; HF; **ANTENNA**; NUCLEAR; MAGNETIC; RESONANCE; TOMOGRAPHY; SURFACE; WAVE; BLOCK; APPARATUS; **ANTENNA**; ASYMMETRIC; LINE
Derwent Class: S01; S03; S05; U25
International Patent Class (Additional): G01N-024/04; G01R-033/20; H03H-007/42; H04B-001/04; H04B-015/00
File Segment: EPI
Manual Codes (EPI/S-X): S01-E; S01-H05; S03-E07; S05-D02X; U25-D

21/9/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007912922 **Image available**
WPI Acc No: 1989-178034/**198924**
XRPX Acc No: N89-135939
Dynamic disabling NMR field **coil** - has each end loop coupled to grounded shield by four equidistantly spaced switchable impedance circuits
Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: EASH M G
Number of Countries: 005 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4833409	A	19890523	US 87135975	A	19871221	198924	B
EP 322192	A	19890628	EP 88312065	A	19881220	198926	
EP 322192	B1	19940706	EP 88312065	A	19881220	199426	
DE 3850559	G	19940811	DE 3850559	A	19881220	199431	
			EP 88312065	A	19881220		

Priority Applications (No Type Date): US 87135975 A 19871221
Cited Patents: 2.Jnl.Ref; A3...9101; EP 170514; EP 170558; EP 276509; No-SR.Pub; EP 177855
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4833409	A		6		
EP 322192	A	E			
	Designated States (Regional): DE FR GB NL				
EP 322192	B1	E	9	G01R-033/32	
	Designated States (Regional): DE FR GB NL				
DE 3850559	G			G01R-033/32	Based on patent EP 322192

Abstract (Basic): US 4833409 A
The detunable **coil** assembly, for an NMR imaging system, has a cylindrical cage **coil** comprising two spaced-apart **conductive** end loops with a number of **conductive** segments extending between the loops. A grounded shield is disposed around the cage **coil**. Each of the end loops is coupled to the shield by four switchable impedance circuits that are equidistantly spaced around the loop.

Each impedance includes a coaxial cable having a length equal to one-quarter the wavelength of the resonant frequency of the cage **coil** with the central **conductor** coupled at one end to the cage **coil** and the other **conductor** connected to the shield. A PIN diode terminates the other end of the coaxial cable. A voltage supply provides potentials for alternately forward and reverse biasing the PIN diode.

ADVANTAGE - Can withstand high power excitation signals

Abstract (Equivalent): EP 322192 B
A radio frequency NMR **coil** assembly comprising: a cylindrical field **coil** (10) having a pair of **conductive** loop elements (15,16) disposed in a spaced-apart relation along a central axis, and a plurality of **conductive** segments (21-28) electrically interconnecting the pair of **conductive** loop elements at periodic points around each of the loop elements, and the **conductive** segments including reactive elements (31-38) which have values that cause the cylindrical cage **coil** to resonate at a given frequency; a shield (14) disposed about and containing the magnetic field produced by the cylindrical cage **coil**, said radio frequency NMR **coil** assembly being characterised by: a plurality of impedance elements (41-48) separately coupling each of the **conductive** loop elements to ground potential, the impedance elements associated with each loop being independently connected along the periphery of the loop, the impedance elements being switchable between two impedance values to switchably detune the resonance of the cylindrical cage **coil** at the given frequency.

Dwg.1/3

Title Terms: DYNAMIC; DISABLE; NMR; FIELD; **COIL**; END; LOOP; COUPLE; GROUNDED; SHIELD; FOUR; EQUIDISTANT; SPACE; SWITCH; IMPEDANCE; CIRCUIT
Derwent Class: S01; S03; S05; V02
International Patent Class (Main): G01R-033/32
International Patent Class (Additional): G01N-024/04; G01R-033/20;

G01R-033/36
File Segment: EPI
Manual Codes (EPI/S-X): S01-E; S01-H05; S03-E07; S05-D02X; V02-F01

21/9/16 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007887480 **Image available**
WPI Acc No: 1989-152592/**198921**
Related WPI Acc No: 1986-049807; 1987-064908; 1988-057990; 1988-098685; 1988-190390; 1989-055669; 1990-022196; 1990-099524; 1991-045875; 1992-270499
XRPX Acc No: N89-116445
Localised **coil** arranged receiving resonating nuclei signals - has magnet creating main magnetic field through image region and localised **coil** with twin **conductors**
Patent Assignee: PICKER INT INC (PXRM)
Inventor: HOLLAND G N; MEHDIZADEH M; MISIC G J; PATRICK J L
Number of Countries: 005 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 317090	A	19890524	EP 88309941	A	19881021	198921	B
US 4839594	A	19890613	US 87120475	A	19871113	198930	

Priority Applications (No Type Date): US 87120475 A 19871113; US 85765708 A 19850814; US 86931726 A 19861117; US 8786277 A 19870817
Cited Patents: 2.Jnl.Ref; A3...9036; EP 164164; EP 175129; EP 239426; EP 256370; GB 2149124; GB 2174814; JP 63045550; No-SR.Pub; WO 8400214
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 317090	A	E	21		
Designated States (Regional): DE FR GB NL					
US 4839594	A		14		

Abstract (Basic): EP 317090 A
The magnet (12) creates a main magnetic field along a Z-axis through an image region. A localised **coil** (D) is disposed in the image region at least to receive magnetic resonance signals from nuclei of the subject which have been induced to resonance. The localised **coil** (D) includes an inner **conductor** (30), an outer **conductor** (32), and a dielectric material (52) therebetween. The outer **conductor** defines a gap (50) midway between its ends. One end of the inner **conductor** is connected with a gate of an FET transistor (66) and the outer **conductor** is connected with its source.

The transistor source and drain are connected by a coaxial transmission cable (38) with a DC power supply (70) which provides a DC bias across the transistor source and drain. The cable also connects the transistor with a radio frequency receiver (40) to convey preamplified magnetic resonance signals thereto. The other end of the inner **conductor** may be connected with the outer **conductor** to provide an unbalanced localised **coil** or the ends may each be connected with an FET transistor (66a, 66b) in a balanced **coil** arrangement.

ADVANTAGE - Q values of **coil** remain stable.

Dwg.1/11

Abstract (Equivalent): US 4839594 A
A magnet (12) creates a main magnetic field along a z-axis through an image region. A localised **coil** (D) is disposed in the image region at least to receive magnetic resonance signals from muclei of the subject which have been induced to resonance. The localised **coil** includes an inner **conductor** (30), an outer **conductor** (32), and a dielectric material (52). The outer **conductor** defines a gap (50) midway between its ends. One end of the inner **conductor** is connected with a gate of an FET transistor (66) and the outer **conductor** is connected with its source. The transistor source and drain are connected by a coaxial transmission cable 838(38) with a DC power supply (70) which provides a DC bias across the transistor source and drain.

The cable also connects the transistor with a radio frequency receiver (40) to convey preamplified magnetic resonance signals. The other end of the inner **conductor** may be connected with the outer **conductor** to provide an unbalanced localised **coil** or the ends may each be connected with an FET transistor (66a, 66b) in a balanced **coil** arrangement.

ADVANTAGE - Improved a factor of **coil**, reduced interaction between localised **coil** and subject. (14pp)

Title Terms: LOCALISE; **COIL**; ARRANGE; RECEIVE; RESONANCE; NUCLEUS; SIGNAL; MAGNET; MAIN; MAGNETIC; FIELD; THROUGH; IMAGE; REGION; LOCALISE; **COIL**; TWIN; **CONDUCTOR**
Derwent Class: S01; S03; S05; V02
International Patent Class (Additional): G01N-024/04; G01R-033/20
File Segment: EPI
Manual Codes (EPI/S-X): S01-E; S03-C02X; S03-E07; S05-D02X; V02-F01

21/9/17 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007790227 **Image available**
WPI Acc No: 1989-055339/**198908**
XRPX Acc No: N89-042174
Localisation **coil** for NMR - has inner **conductor** of coaxial lead coupled to screening at beginning of winding
Patent Assignee: SIEMENS AG (SIEI)
Inventor: LORENZ W J; ZABEL H J
Number of Countries: 004 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 303879	A	19890222	EP 88112470	A	19880801	198908	B
DE 3727056	A	19890309	DE 3727056	A	19870813	198911	
US 4835472	A	19890530	US 88226890	A	19880801	198926	
EP 303879	B	19910417				199116	
DE 3862444	G	19910523				199122	

Priority Applications (No Type Date): DE 3727056 A 19870813
Cited Patents: EP 200078; EP 222982; GB 2159958; WO 8200378; WO 8400214; 1.Jnl.Ref
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 303879	A	G	7		
	Designated States (Regional): DE FR GB				
US 4835472	A		6		
EP 303879	B				
	Designated States (Regional): DE FR GB				

Abstract (Basic): EP 303879 A

The localisation oil uses a coaxial line section (1) formed into a **coil** winding. The inner **conductor** (1a) of the coaxial line section is coupled at one end to the mantle screening (1b) at the beginning of the **coil** winding. The coupling is effected via a second unscreened winding (2) which is wound in the same direction as the **coil** winding, the two windings (1,2) pref. having different dias to allow one to fit inside the other.

Pref. the **coil** winding is coupled to a tuning circuit (3) via a coaxial line (4b).

ADVANTAGE - Simple compact localisation **coil**. Capacitative tuning through patient remains low.

Abstract (Equivalent): EP 303879 B

Local **coil** for the spectroscopic or imaging examination of a `subject with the help of nuclear-magnetic resonance, the local **coil** having a coaxial **conductor** element (1) formed into a first turn, the internal **conductor** (1a) being electrically connected at one end of the coaxial **conductor** element (1) to the jacket: shielding (1b) at the **start** (6) of the first turn (1), characterised in that the connectionm takes place by way of at least a second turn (2) of an internal **conductor** without a jacket shielding, the winding sense of the seocnd turn (2) being the same as the winding sense of the first turn (1). (7pp)

Abstract (Equivalent): US 4835472 A
The local **coil** for detecting nuclear magnetic resonance signals from an examination subject, for spectroscopic analysis or image construction, has a coaxial **conductor** member shaped to form a first turn of the **coil**. The inner **conductor** of the coaxial member exits the jacket upon the completion of the first turn. The unshielded inner **conductor** forms a second turn of the **coil** in the int he same winding direction as the first turn, and is connected to the jacket upon completion of the second turn.
The **coil** is thus symmetrical w.r.t ground, independent of frequency, and is balanced so that it can be directly connected to an asymmetrical coaxial cable.
ADVANTAGE - Compact structure
Title Terms: LOCALISE; **COIL**; NMR; INNER; **CONDUCTOR**; COAXIAL; LEAD; COUPLE; SCREEN; BEGIN; WIND
Index Terms/Additional Words: **RESONANCE_SPE**; SPECTROSCOPE; DIAGNOSE; IMAGE; NUCLEAR; MAGNETIC
Derwent Class: S03; S05; V02
International Patent Class (Additional): G01N-024/04; G01R-033/20
File Segment: EPI
Manual Codes (EPI/S-X): S03-E07; S05-D02X; V02-F01

21/9/18 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007696302 **Image available**
WPI Acc No: 1988-330234/**198846**
Related WPI Acc No: 1988-242617
XRPX Acc No: N88-250218
Mri QD RF **coil** having diode switched de tuning circuit - has DC control current flowing through RF **coil**, through diodes and then through centre **conductor** of transmission line
Patent Assignee: UNIV CALIFORNIA (REGC)
Inventor: ARAKAWA M; MCCARTEN B M
Number of Countries: 015 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4782298	A	19881101	US 8791916	A	19870901	198846	B
EP 305830	A	19890308	EP 88113553	A	19880820	198910	
JP 1164357	A	19890628				198932	
EP 305830	B1	19950201	EP 88113555	A	19880820	199509	
DE 3852915	G	19950316	DE 3852915	A	19880820	199516	
			EP 88113555	A	19880820		

Priority Applications (No Type Date): US 8791916 A 19870901; US 8793670 A 19870908
Cited Patents: A3...9037; EP 164164; EP 175129; EP 262495; No-SR.Pub; US 4093911; US 4682125; US 4717881; WO 8701199
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4782298	A		10		
EP 305830	A	E			
Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE					
EP 305830	B1	E	18	G01R-033/36	
Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE					
DE 3852915	G			G01R-033/36	Based on patent EP 305830

Abstract (Basic): US 4782298 A
The magnetic resonance imaging apparatus comprises resonant RF circuit for resonating at a predetermined radio frequency, the resonant circuit including an RF **coil**. A circuit is coupled to the RF **coil** and also is connected to a DC control signal for preventing the resonant circuit from resonating at the predetermined frequency in response to a DC control signal level and for drawing a DC current through the RF **coil** in response to a second DC control signal level, the DC current generating a first magnetic field.
Another structure is disposed in proximity to the RF **coil** and is connected to the preventer for generating a magnetic field cancelling the first magnetic field in response to the second DC

control signal level.
ADVANTAGE - Eliminates antifacts in image that would be generated due to DC bias current flow.
Dwg.1/4

Abstract (Equivalent): EP 305830 B
Magnetic resonance imaging apparatus comprising: a resonant RF circuit means (Cs, Cp, 102) resonating at a predetermined radio frequency, said resonant RF circuit means (Cs, Cp, 102) including an RF **coil** (102); at least one control device (111a, 111b) coupled to said RF **coil** (102) and also connected to a DC control signal source for preventing said resonant RF circuit means (Cs, Cp, 102) from resonating at said predetermined frequency in response to passage of a DC current through an RF **coil** portion (106) in response to a predetermined DC control signal (S), said DC current generating a first magnetic field; said magnetic resonance imaging apparatus being characterised by further structure (114, 118) disposed in proximity to said RF **coil** portion (106) and connected to also **conduct** said DC current therealong to generate a further magnetic field substantially cancelling said first magnetic field.
Dwg.1/4b

Title Terms: MRI; RF; **COIL**; DIODE; SWITCH; DE; TUNE; CIRCUIT; DC; CONTROL; CURRENT; FLOW; THROUGH; RF; **COIL**; THROUGH; DIODE; THROUGH; CENTRE; **CONDUCTOR**; TRANSMISSION; LINE
Derwent Class: P31; S01; S03; S05; V02
International Patent Class (Main): G01R-033/36
International Patent Class (Additional): A61B-010/00; G01N-024/04; G01R-033/20; H01F-007/20
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S01-E02; S01-H05; S03-E07; S05-D02X; V02-D

21/9/19 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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007682613 **Image available**
WPI Acc No: 1988-316545/**198845**
XRPX Acc No: N88-240021
Passively-decoupled receiving **antenna** esp. NMR imaging - has circular main loop and cruciform array of smaller sec. loops spaced apart in parallel planes
Patent Assignee: GENERAL ELECTRIC CGR SA (CGRR); THOMSON-CGR (CSFC)
Inventor: JACOB H; MAMETSA H; MAMETSA H R
Number of Countries: 006 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 290315	A	19881109	EP 88401014	A	19880426	198845	B
FR 2615040	A	19881110				198901	
JP 63286143	A	19811122	JP 88111372	A	19880507	198901	
US 4857850	A	19890815	US 88189803	A	19880503	198941	
EP 290315	B1	19920930	EP 88401014	A	19880426	199240	
DE 3874951	G	19921105	DE 3874951	A	19880426	199246	
			EP 88401014	A	19880426		

Priority Applications (No Type Date): FR 876488 A 19870507
Cited Patents: EP 142077; EP 145915; EP 164164; EP 175129; EP 218290; GB 2014796
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 290315	A	F	9		
Designated States (Regional): DE GB NL					
US 4857850	A		9		
EP 290315	B1	F	11	G01R-033/34	
Designated States (Regional): DE GB NL					
DE 3874951	G			G01R-033/34	Based on patent EP 290315

Abstract (Basic): DE 3874951 G
The main loop (17) and the small loops (16) of the sec. circuit are connected in series but located on planes (18,19) sepd. by a distance (d). Each small loop is equal in area to a quarter of the main loop. The position of the resonance capacitors (19,20) in the respective

loops makes for a null average voltage at their terminals. The axes of the small loops are offset from the centre of the main loop by the latter's radius (r). USE/ADVANTAGE - Esp. for medical diagnostic imaging, insensitivity to uniform field of transmitting **antenna** is ensured without degradation of received signal. Any part of body including ear can be observed without patient being required to lie on his or her side.

EP 290315 A

The main loop (17) and the small loops (16) of the sec. circuit are connected in series but located on planes (18,19) sepd. by a distance (d). Each small loop is equal in area to a quarter of the main loop.

The position of the resonance capacitors (19,20) in the respective loops makes for a null average voltage at their terminals. The axes of the small loops are offset from the centre of the main loop by the latter's radius (r).

USE/ADVANTAGE - Esp. for medical diagnostic imaging, insensitivity to uniform field of transmitting **antenna** is ensured without degradation of received signal. Any part of body including ear can be observed without patient being required to lie on his or her side.

3a/6

Abstract (Equivalent): EP 290315 B

Passive decoupling reception **antenna** (7) for an apparatus (1-11) for imaging by nuclear magnetic resonance, comprising two magnetic circuits (17, 16) which are adjacent and antagonistic in order to oppose their respective induced electromotive forces to each other when these induced electromotive forces are induced by an emitter which with respect to the said **antenna** emits a substantially uniform field, the first circuit (17) comprising a magnetic loop, the second circuit (16) comprising a number of magnetic loops of which the overall area is approximately equal to the area of the loop of the first circuit (17), characterised by the fact that the plane of the loops of the second circuit (16) is offset in relation to the plane of the loops of the first circuit (17) and that the axes perpendicular in their centre to the loops of the second circuit (16) are evenly distributed in the space around the axis perpendicular to the loop of the first circuit (17).

(Dwg.1/6

Abstract (Equivalent): US 4857850 A

The **antenna** for nuclear magnetic resonance imaging devices has two electromagnetic circuits connected to each other so as to produce mutual opposition of their electromotive force when they are placed in a uniform electromagnetic induction field. It is considered that a localised transmitter does not produce a uniform field. This **antenna** therefore makes it possible to detect this field if it comes close to this latter. On the other hand, this **antenna** does not present any reactive field to a transmitter in which it may be considered that the field opposite to said **antenna** is uniform.

(9pp

Title Terms: PASSIVE; DECOUPLE; RECEIVE; **ANTENNA**; NMR; IMAGE; CIRCULAR; MAIN; LOOP; CRUCIFORM; ARRAY; SMALLER; SEC; LOOP; SPACE; APART; PARALLEL; PLANE

Index Terms/Additional Words: MEDICAL; DIAGNOSE

Derwent Class: P31; S03; S05; W02

International Patent Class (Main): G01R-033/34

International Patent Class (Additional): A61B-005/05; A61B-010/00; G01N-024/04; G01R-033/20; H01Q-001/52

File Segment: EPI; EngPI

Manual Codes (EPI/S-X): S03-E07; S05-D02X; W02-B01

21/9/20 (Item 20 from file: 350)

DIALOG(R)File 350:Derwent WPIX

007617595 **Image available**

WPI Acc No: 1988-251527/**198836**

XRPX Acc No: N88-191324

Multiconductor surface **coil** for NMR tomography - consists of lengthwise **conductor** sections between which bridging **conductors** can be switched tin or out selectively

Patent Assignee: SIEMENS AG (SIEI)

L4 ANSWER 3 OF 14 WPIX (C) 2003 THOMSON DERWENT
AN 1999-386866 [33] WPIX
DNN N1999-289773
TI Radio frequency **coil** device for magnetic resonance imaging system.
DC S01 S03 S05 V02
IN BOSKAMP, E B; **TROPP, J**
PA (GENE) GENERAL ELECTRIC CO
CYC 4
PI DE 19859566 A1 19990624 (199933)* 11p G01R033-32
CN 1228291 A 19990915 (200001) A61B005-055
JP 11285482 A 19991019 (200001) 9p A61B005-055
US 6008649 A 19991228 (200007) G01V003-00
ADT DE 19859566 A1 DE 1998-19859566 19981222; CN 1228291 A CN 1998-126007 19981222; JP 11285482 A JP 1998-360141 19981218; US 6008649 A US 1997-997129 19971223
PRAI US 1997-997129 19971223
IC ICM A61B005-055; G01R033-32; G01V003-00
ICS G01R033-20; G01R033-34; H01F005-00
AB DE 19859566 A UPAB: 19990819
NOVELTY - The **coil** is positioned with respect to the B0 field of the MRI system and includes a symmetrical network containing a spaced pair of extensive **coil** units and a number of lateral **coil** units lying along the extensive **coil** units and parallel to each them. Two orthogonal coupling networks (22,30), respectively capacitive and inductive, are provided for operating the **coils** with first and second radio frequency components, having equal frequencies.

DETAILED DESCRIPTION - A number of capacitors of one capacitance are arranged along the **coil** unit. A capacitor of a second capacitances are arranged in each lateral **coil** unit.

An INDEPENDENT CLAIM is included for a radio frequency **coil** device.

USE - For medical MRI unit.

ADVANTAGE - Allows imaging of a long structure, such as the spinal column.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic representation of the **coil** device.

Coupling networks 22,30

Dwg.1/8
FS EPI
FA AB; GI
MC EPI: S01-E02A2; S03-E07A; S05-D02B1; V02-F01G; V02-F03

L4 ANSWER 5 OF 14 JAPIO COPYRIGHT 2003 JPO
AN 1999-267113 JAPIO
TI METHOD AND DEVICE FOR MAGNETIC RESONANCE SPECTROSCOPY IMAGING
IN RALF E HURD; SAILASUTA NAPAPON; **JAMES S TROPP**; PATRICK L RU RU
PA GENERAL ELECTRIC CO <GE>
PI JP 11267113 A 19991005 Heisei
AI JP 1999-37963 (JP11037963 Heisei) 19990217
PRAI US 1998-26037 19980219
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
IC ICM A61B005-055
ICS G01R033-48
AB PROBLEM TO BE SOLVED: To minimize a chemical shift error in a proton magnetic resonance spectroscopy by a method wherein a region exciting pulse sequence and an extra-region saturated pulse having an extremely high selectivity, are applied, and the region is defined to a region of interest where a positional slip error does not exist.
SOLUTION: A gradient magnetic field is formed by a gradient amplifier 22 through a computer 20, and also, an RF **coil** 26 in order to generate a B<SB>1</SB> magnetic field for a Larmor frequency, is controlled by a transmitter 24. When a selected core is excited, an FID(free induction damping) signal is detected by using the RF **coil** 26, and the signal is input in the computer 20 and processed. In this case, an extra-region saturated pulse having a high selectivity to frequencies outside a related region, is applied, and the generation of the signal from the outside of the related region is suppressed, and then, a pulse sequence is applied so that the related region may be excited by a passing zone which is common for all the desired chemical shift frequencies, and the signals are detected from the related region, and an image forming is performed.
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L4 ANSWER 6 OF 14 SCISEARCH COPYRIGHT 2003 THOMSON ISI
AN 97:448177 SCISEARCH
GA The Genuine Article (R) Number: XD105
TI Mutual inductance in the bird-cage resonator
AU **Tropp J (Reprint)**
CS GEN ELECT MED SYST, 47697 WESTINGHOUSE DR, FREMONT, CA 94539 (Reprint)
CYA USA
SO JOURNAL OF MAGNETIC RESONANCE, (MAY 1997) Vol. 126, No. 1, pp. 9-17.
Publisher: ACADEMIC PRESS INC JNL-COMP SUBSCRIPTIONS, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 1090-7807.
DT Article; Journal
FS PHYS; LIFE
LA English
REC Reference Count: 21
AB Formulas are derived to account for the effect of the mutual inductances, between all meshes, upon the electrical resonance spectra bird-cage resonators, and similar structures such as the TEM resonator of P. K. H. Roschmann (United States Patent 4,746,866) and J. T. Vaughan et al. (Magn. Reson. Med. 32, 206, 1994). The equations are parameterized in terms of isolated mesh frequencies and coupling coefficients, and ought therefore apply not only to simple magnetic couplings used in the derivation, but to electromagnetic couplings as well. A method for measuring the coupling coefficients-applicable to shielded as well as unshielded resonators-is described, based upon the splitting of frequencies in pairs of coupled resonators; and detailed comparisons are given between calculated and measured resonance spectra: for bird-cage resonators, with and without shields, and for the TEM resonator. (C) 1997 Academic Press.
CC PHYSICS, ATOMIC, MOLECULAR & CHEMICAL; BIOCHEMICAL RESEARCH METHODS

L4 ANSWER 7 OF 14 WPIX (C) 2003 THOMSON DERWENT DUPLICATE 2
AN 1993-116970 [14] WPIX
DNN N1993-089153
TI Asymmetry correcting method for NMR radio-frequency **coil** - detecting asymmetry and magnitude and position of reactive elements to be placed in series with conductive segments spaced apart by 45 degrees..
AW NUCLEAR MAGNETIC RESONANCE.
DC S01 S03 V02
IN **TROPP, J S**
PA (TOKE) TOSHIBA AMERICA MRI INC
CYC 1
PI US 5196797 A 19930323 (199314)* 10p G01R033-20
ADT US 5196797 A US 1990-607146 19901031
PRAI US 1990-607146 19901031
IC ICM G01R033-20
AB US 5196797 A UPAB: 19930924
The method involves correcting the asymmetry in an NMR radio frequency **coil** of the type that has a pair of conductive loop elements disposed in a spaced apart relation along a common longitudinal axis. The **coil** has at least eight conductive elements electrically interconnecting the loop elements at point spaced along the periphery of each of the loops. A pair of corrective capacitive elements are placed 45 degrees apart from one another and in series with a pair of the conductive segments which interconnect the loops. The method also relates to an NMR radio frequency **coil** having N-fold symmetry and reduced eddy current. USE/ADVANTAGE - for NMR imaging and spectroscopy. NMR RF **coil** has reduced eddy current.
2/2
FS EPI
FA AB; GI
MC EPI: S01-E02A; S01-H01A; S01-H05; S03-E07; V02-F01

L4 ANSWER 8 OF 14 WPIX (C) 2003 THOMSON DERWENT
AN 1991-266669 [36] WPIX
DNN N1991-203605
TI Dual-tuned RF **coil** for MRI spectroscopy - provides single composite RF **coil** for MRI spectroscopy involving at least two NMR nuclear species at different frequencies.
DC S01 S03 S05 V02
IN **TROPP, J S**
PA (TOSH-N) TOSHIBA AMER MRI IN
CYC 1
PI US 5041790 A 19910820 (199136)*
ADT US 5041790 A US 1990-466021 19900116
PRAI US 1990-466021 19900116
IC G01R033-20
AB US 5041790 A UPAB: 19930928
A hybrid bird cage/Helmholtz RF **coil** provides a single composite RF **coil** for MRI spectroscopy involving at least two NMR nuclear species at respectively different RF frequencies. The bird cage portion may be tuned to the lower NMR frequency and coupled to a pair of quardrature-phase input/output ports so as to provide needed extra sensitivity and signal-to-noise ratio. At least one further RF input/output port provides coupling for a second, higher, MNR RF frequency.

The exemplary resonator is constructed on a plexiglass cylinder (10) and comprises four circumferential copper rings (the "end rings", ER1 through ER4)as well as eight axial copper legs, disposed equally about the cylinder axis. The two inner rings, ER2 and ER3, together with the capacitors in the annulus bounded by them (C9-C16), form a low pass bird cage structure; capacitively coupled, by C1,C2,C3 and C4, to the two outer rings, ER1 and ER4. These latter m constitute the boundary rings of what would be essentially a 'half Helmholtz' resonator if the two inner rings were removed, leaving C9 and C13 in place.

USE - Medical.

1/6
FS EPI
FA AB; GI

L4 ANSWER 9 OF 14 SCISEARCH COPYRIGHT 2003 THOMSON ISI
AN 91:614272 SCISEARCH
GA The Genuine Article (R) Number: GN287
TI THE THEORY OF AN ARBITRARILY PERTURBED BIRD-CAGE RESONATOR, AND A SIMPLE METHOD FOR RESTORING IT TO FULL SYMMETRY
AU **TROPP J (Reprint)**
CS UNIV CALIF SAN FRANCISCO, RADIOL IMAGING LAB, S SAN FRANCISCO, CA, 94080
CYA USA
SO JOURNAL OF MAGNETIC RESONANCE, (1991) Vol. 95, No. 2, pp. 235-243.
DT Article; Journal
FS PHYS
LA ENGLISH
REC Reference Count: 8
CC PHYSICS, ATOMIC, MOLECULAR & CHEMICAL
STP KeyWords Plus (R): **COIL**
RF 91-5910 001; MAGNETIC-RESONANCE-IMAGING QUADRATURE COILS; INVIVO LOCALIZED P-31 NMR-SPECTROSCOPY; SPHERICAL BIRDCAGE RESONATOR
RE

Referenced Author	Year	VOL	PG	Referenced Work

L4 ANSWER 10 OF 14 WPIX (C) 2003 THOMSON DERWENT
AN 1990-091198 [12] WPIX
DNN N1990-070488
TI Automated magnetic field shimming in MR spectroscopic imaging - derives spectroscopic plot for each vowel in 3-D array using doubly phase encoded NMR spin echo responses or NMR FID RF responses.
DC S01 S03 S05 V02
IN DERBY, K A; KAWYYSZKO, K C; **TROPP, J S**
PA (DIAS-N) DIASONICS INC; (TOKE) TOSHIBA KK
CYC 3
PI US 4899109 A 19900206 (199012)* 25p
EP 434870 A 19910703 (199127)#
R: DE NL
ADT US 4899109 A US 1988-233021 19880817; EP 434870 A EP 1989-313628 19891228
PRAI US 1988-233021 19880817
REP 2.Jnl.Ref; DE 3842104; EP 230027; US 4720679; US 4761614; WO 8904478
IC G01R033-20
AB US 4899109 A UPAB: 19930928
The automated magnetic field shimming process uses doubly phase encoded NMR spin echo responses in conjunction with multiple fourier transformation to derive a spectroscopic plot for each voxel in a three-dimensional array of voxels in an image volume. It is subsequently subjected to MRSI using NMR FID or spin echo responses. The derived hydrogen peak frequency is taken as a measurement of existing static magnetic field intensity within that voxel and adjusted shim **coil** currents are calculated so as to reduce or minimise nonuniformity of the static magnetic field.

A nonexistent pseudo shim **coil** having an assumed uniform shim contribution may enhance the resulting field homogeneity. The auto shimming procedure may be applied iteratively as required to achieve the predetermined degree of field uniformity.

ADVANTAGE - Practical automatic process with minimised inhomogeneities in composite static magnetic field.

1/15
FS EPI
FA AB; GI

L4 ANSWER 11 OF 14 INSPEC COPYRIGHT 2003 IEE DUPLICATE 3
AN 1990:3631269 INSPEC DN A90071693
TI Design and evaluation of a novel dual-tuned resonator for spectroscopic imaging.
AU Derby, K.; **Tropp, J.**; Hawryszko, C. (Diasonics Inc., South San Francisco, CA, USA)
SO Journal of Magnetic Resonance (15 Feb. 1990) vol.86, no.3, p.645-51. 10 refs.
Price: CCCC 0022-2364/90/$3.00
CODEN: JOMRA4 ISSN: 0022-2364
DT Journal
TC Practical; Experimental
CY United States
LA English
AB The need for dual-tuned probes in the clinical spectroscopy of low-gamma nuclei is well established. Such probes simplify patient setup and allow the functions of scout imaging, shimming, and data collection to be performed in sequence, without disturbing or repositioning the patient. In developing techniques for 31P spectroscopic imaging of humans the authors have used several dual-tuned 31P/1H probes, based on crossed, orthogonal Helmholtz resonators for the two frequencies. Such probes are not easily adapted to laboratory-frame quadrature detection for 31P; so a potential gain of square root 2 in sensitivity is not realized. Furthermore the small aspect ratio required to minimize pickup of extraneous tissue noise leads typically to poor RF homogeneity across the sample in a Helmholtz resonator. A bird-cage resonator is naturally adapted to quadrature operation and has better RF homogeneity than a Helmholtz **coil** of comparable aspect ratio. However a dual-tuned bird cage (e.g., band-pass configuration) is needlessly complex, if performance of the 1H channel is not critical. The authors have therefore designed a hybrid resonator, in which a quadrature-tuned 31P bird cage is coupled to a 1H 'half-Helmholtz' or Alderman-Grant **coil** (1979), in such a way that they share a pair of legs. The resulting dual-tuned resonator has proven fairly easy to build and simple to operate, and has provided 31P spectra of outstanding quality.
CC A0758 Magnetic resonance spectrometers, auxiliary instruments and techniques

L4 ANSWER 12 OF 14 MEDLINE DUPLICATE 4
AN 89384122 MEDLINE
DN 89384122 PubMed ID: 2550721
TI A dual-tuned probe and multiband receiver front end for X-nucleus spectroscopy with proton scout imaging in vivo.
AU **Tropp J**; Sugiura S
CS Diasonics MRI, c/o University of California San Francisco Imaging Lab 94080.
SO MAGNETIC RESONANCE IN MEDICINE, (1989 Sep) 11 (3) 405-12.
Journal code: 8505245. ISSN: 0740-3194.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198910
ED Entered STN: 19900309
Last Updated on STN: 19900309
Entered Medline: 19891017
AB A dual-tuned volume **coil** probe and a novel multituned receiver front end are described, for spectroscopy in vivo of X nuclei with scout imaging of protons. Detailed circuit information is given for the probe, diplexer, receiver protection switch, and preamplifier.
CT Check Tags: Human; Support, Non-U.S. Gov't
Amplifiers
Brain Neoplasms: DI, diagnosis
Electric Conductivity
Electron Spin Resonance Spectroscopy
Electronics, Medical: IS, instrumentation
Equipment Design
Glioblastoma: DI, diagnosis
*Magnetic Resonance Spectroscopy: IS, instrumentation
Magnetic Resonance Spectroscopy: MT, methods
Protons

L4 ANSWER 13 OF 14 MEDLINE DUPLICATE 5
AN 89175601 MEDLINE
DN 89175601 PubMed ID: 2925904
TI Metabolic response of glioblastoma to adoptive immunotherapy: detection by phosphorus MR spectroscopy.
AU Ross B D; **Tropp J**; Derby K A; Sugiura S; Hawryszko C; Jacques D B; Ingram M
CS Huntington Medical Research Institutes, Pasadena, CA 91105-3201.
SO JOURNAL OF COMPUTER ASSISTED TOMOGRAPHY, (1989 Mar-Apr) 13 (2) 189-93. Journal code: 7703942. ISSN: 0363-8715.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198905
ED Entered STN: 19900306
Last Updated on STN: 19900306
Entered Medline: 19890504
AB In a patient with cerebral glioblastoma, metabolic disturbances were detected within the tumor and in the surrounding brain. Within the volume occupied by the tumor, phosphocreatine (PCr)/adenosine triphosphate was reduced and inorganic phosphate/PCr elevated, indicative of tissue necrosis. Loss of total 31P signal was consistent with reduced metabolite content within the area of tumor defined by CT and magnetic resonance (MR). These studies were accomplished with 31P MR spectroscopy at 2 T, using a volume head **coil** and the technique of two-dimensional phase-encoding to map regional metabolism across the entire cerebral cortex in voxels of 30 cm3. Using the same method, only minor variations in 31P metabolism were noted in six normal controls. Treatment with locally placed Interleukin-2 activated lymphocytes resulted in changes in both MR and 31P MR spectroscopy in the region of the tumor.
CT Check Tags: Case Report; Human; Male
*Brain Neoplasms: ME, metabolism
Brain Neoplasms: PA, pathology

L7 ANSWER 1 OF 1 INSPEC COPYRIGHT 2003 IEE
AN 1997:5647546 INSPEC DN A9717-0758-004
TI Mutual inductance in the bird-cage resonator.
AU **Tropp, J. (Gen. Electr. Med. Syst., Fremont, CA, USA)**
SO Journal of Magnetic Resonance (May 1997) vol.**126**, no.1, p.9-17.
22 refs.
Published by: Academic Press
Price: CCCC 1090-7807/97/$25.00
CODEN: JOMRA4 ISSN: 1090-7807
SICI: 1090-7807(199705)**126**:1L.9:MIBC;1-L
DT Journal
TC Theoretical
CY United States
LA English
AB Formulas are derived to account for the effect of the mutual inductances, between an meshes, upon the electrical resonance spectra bird-cage resonators, and similar structures such as the TEM resonator of Raschmann (United States Patent 4,746,866) and Vaughan et al. (1994). The equations are parameterized in terms of isolated mesh frequencies and coupling coefficients, and ought therefore apply not only to simple magnetic couplings used in the derivation, but to electromagnetic couplings as well. A method for measuring the coupling coefficients-applicable to shielded as well as unshielded resonators-is described, based upon the splitting of frequencies in pairs of coupled resonators; and detailed comparisons are given between calculated and measured resonance spectra: for bird-cage resonators, with and without shields, and for the TEM resonator.
CC A0758 Magnetic resonance spectrometers, auxiliary instruments and techniques

L8 ANSWER 7 OF 7 SCISEARCH COPYRIGHT 2003 THOMSON ISI
AN 1999:180737 SCISEARCH
GA The Genuine Article (R) Number: 170KH
TI Experimentally verified, theoretical design of dual-tuned, low-pass birdcage radiofrequency resonators for magnetic resonance imaging and magnetic resonance spectroscopy of human brain at 3.0 Tesla
AU Shen G X (Reprint); Wu J F; Boada F E; Thulborn K R
CS UNIV PITTSBURGH, MED CTR, MR RES CTR, PRESBYTERIAN UNIV HOSP, B828, PITTSBURGH, PA 15213 (Reprint); UNIV PITTSBURGH, MED CTR, DEPT RADIOL, MR RES CTR, PITTSBURGH, PA
CYA USA
SO MAGNETIC RESONANCE IN MEDICINE, (FEB 1999) Vol. 41, No. 2, pp. 268-275.
Publisher: LIPPINCOTT WILLIAMS & WILKINS, 227 EAST WASHINGTON SQ, PHILADELPHIA, PA 19106.
ISSN: 0740-3194.
DT Article; Journal
FS CLIN
LA English
REC Reference Count: 32
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB A new theoretical method is presented for designing frequency responses of double-tuned, low-pass birdcage coils. This method is based on Kirchhoff's equations through a nonsymmetric matrix algorithm and extended through a modification of the corresponding eigenvalue system from a single-tuned mode. Designs from this method are verified for sodium/proton, dual-tuned, double-quadrature, low-pass birdcage coils at 1.5 Telsa and 3.0 Tesla and then are used to design dual-tuned, double-quadrature, lithium/proton and phosphorus/proton birdcage coils for 3.0 Tesla, All frequencies show experimental deviations of less than 3% from theory under unloaded conditions. The frequency shifts caused by loading and radiofrequency shielding are less than 1 MHz and can be compensated readily by adjustment of variable capacitors. Applications to human neuroimaging and spectroscopy are demonstrated. (C) 1999 Wiley-Liss, Inc.

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	
TROPP J	1997	126	9	J MAGN RESON	<--

L34 ANSWER 21 OF 36 INSPEC COPYRIGHT 2003 IEE
AN 1998:5903310 INSPEC DN A9811-8760I-025; B9806-7510B-074
TI Numerical simulation of SAR and B1-field inhomogeneity of shielded RF coils loaded with the human head.
AU Ji Chen; Zhaomei Feng; Jian-Ming Jin (Electromagn. Lab., Illinois Univ., Urbana, IL, USA)
SO IEEE Transactions on Biomedical Engineering (May 1998) vol.45, no.5, p.650-9. 31 refs.
Doc. No.: S0018-9294(98)02884-5
Published by: IEEE
Price: CCCC 0018-9294/98/$10.00
CODEN: IEBEAX ISSN: 0018-9294
SICI: 0018-9294(199805)45:5L.650:NSFI;1-U
DT Journal
TC Theoretical
CY United States
LA English
AB The finite-difference time-domain (FDTD) method is combined with the method of moments (MoM) to compute the electromagnetic fields of shielded radio-frequency (RF) coils loaded with an anatomically accurate model of a human head for high-frequency **magnetic resonance** imaging (**MRI**) applications. The combined method can predict both the specific energy absorption rate (SAR) and the magnetic field (known as the B1 field) excited by any RF coils. Results for SAR and B1 field distribution, excited by shielded and **end-capped** birdcage coils, are calculated at 64, 128, 171, and 256 MHz. The results show that the value of SAR increases when the frequency of the B1 field increases and the B1 field exhibits a strong inhomogeneity at high frequencies.
CC A8760I Medical magnetic resonance imaging and spectroscopy; A8710 General,

L34 ANSWER 31 OF 36 INSPEC COPYRIGHT 2003 IEE
AN 1990:3681643 INSPEC DN A90103872
TI Correcting for nonuniform k-space sampling in two-dimensional **NMR** selective excitation.
AU Hardy, C.J.; Cline, H.E.; Bottomley, P.A. (GE Corp. Res. & Dev. Center, Schenectady, NY, USA)
SO Journal of Magnetic Resonance (May 1990) vol.87, no.3, p.639-45. 16 refs.
Price: CCCC 0022-2364/90/$3.00
CODEN: JOMRA4 ISSN: 0022-2364
DT Journal
TC Theoretical
CY United States
LA English
AB In the case of two-dimensional **NMR** selective excitation, the two gradient waveforms are accompanied by an RF pulse whose waveform is the weighted two-dimensional Fourier transform of the desired 2D excitation profile, where the weighting factor is proportional to the rate of traversal of the k-space trajectory. This method works well for trajectories which cover k space evenly. However, for those trajectories which sample k space nonuniformly, a new weighting factor is necessary. This factor, which is inversely proportional to the density of sampling of k space by the trajectory, can produce significant improvements in the excitation profile even for trajectories which are largely uniform, such as the spiral. The authors demonstrate 2D selective excitation with 1/ rho (K(t)) RF weighting using four examples of 2D trajectories which sample k space nonuniformly: the radial trajectory, the spiral, the **pinwheel**, and the Lissajous.
CC A0758 Magnetic resonance spectrometers, auxiliary instruments and techniques